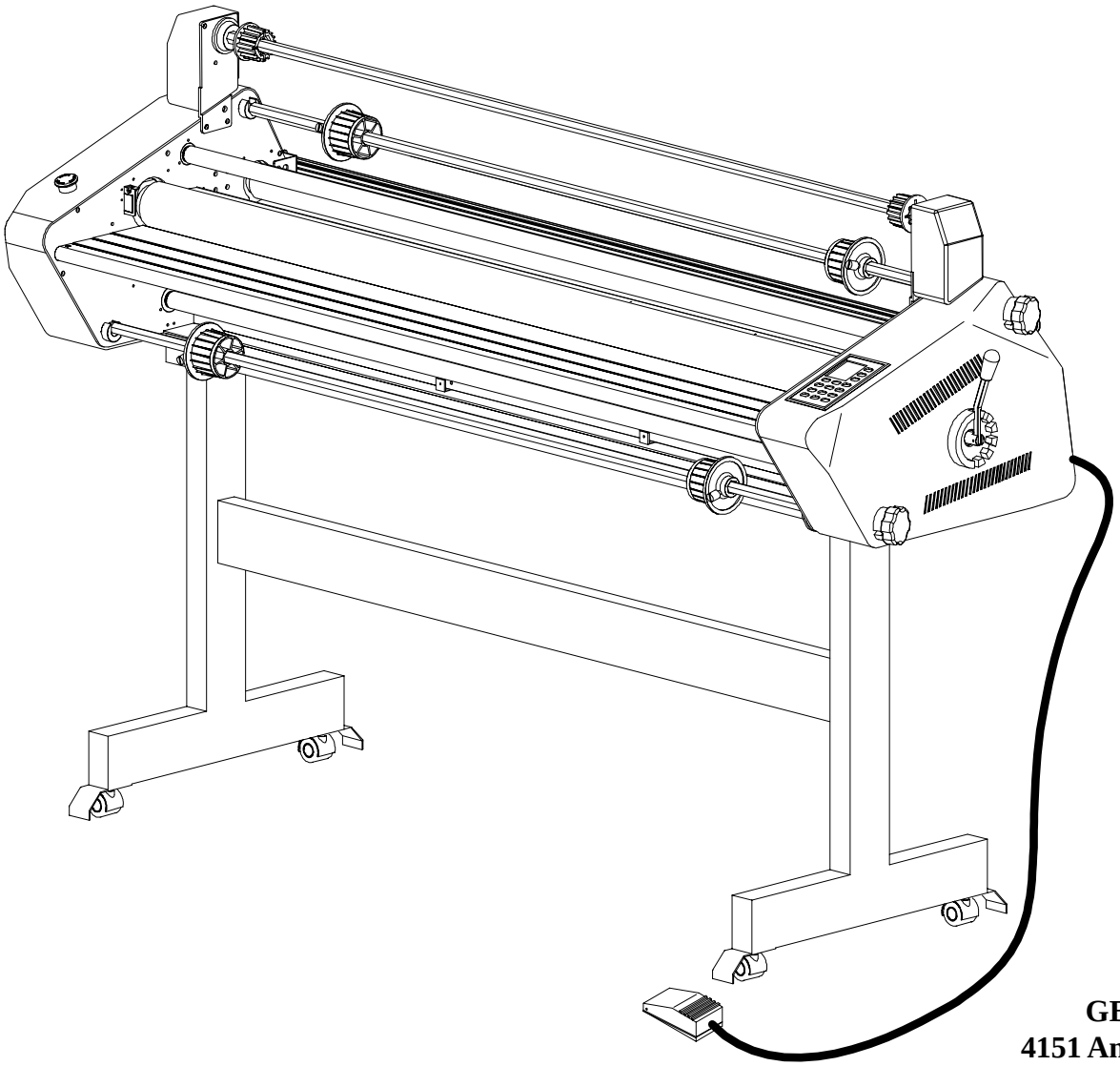
TITAN 165 / 110
TECHNICAL SERVICE MANUAL



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Fax Correspondence

Fax number : (608) 246 - 8645 **Date : _____**

To : Sean Flood @ GBC Pro - Tech
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From : _____

Company : _____

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Phone number : (_____)_____ Fax number : (_____) _____

Re : Titan 165/ 110 Technical Service Manual (930 - 054)

Section #: _____ Page #: _____

Correction (s): _____

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Additional comments: _____

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1.0 Servicing

WARNING

Do not wear ties, loose fit clothing or dangling jewelry while operating or servicing the laminator. These items can get caught in the nip and choke you or you can be crushed or burned.

This section contains the same information as in the Operator's Maintenance section with the addition of maintenance tasks performed by qualified service personnel.

Qualified

• Any engineer that has experience with electrical and mechanical design of lamination equipment. The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

• Any commissioning or service engineer must be of competent nature, trained and qualified to GBC Pro-Tech standards to fulfill that job. This person will have completed and passed the full service training course from GBC Pro-Tech.

• Any GBC Technician, GBC Specialist, and / or GBC Pro-Tech Technician that has been through the GBC Pro-Tech service training course.

1.1 Service schedule

Daily

- Clean the rollers.
  (See cleaning in this section)
- Clean the machine.
  (See cleaning in this section)
- Inspect the electrical cord for damage.
  (If damaged, you should replace or repair it immediately)
- Inspect the footswitch cord for damage.
  (If damaged, you should replace or repair it immediately)

Monthly

- Adjust the main roller nip if needed.
  (See calibrations in Section 2)
- Adjust the pull roller nip if needed.
  (See calibrations in Section 2)
- Check the rewind chain tension.
  (The only chain that can be tensioned)
- Check all safety devices on the laminator
  (Shields, table and E-Stops)
- Inspect the area around the laminator for possible hazards.
  (dust buildup, combustible items stored too close, etc.)

Semi-Annual

- Lubricate sprockets and chains.
  (See Lubrication in this section)

ELECTRICAL SHOCK

Remove power from the laminator before servicing. You can be severely shocked, electrocuted or cause a fire.

- Check wire termination tightness and molex connectors.
  (Main power, terminal blocks, etc.)

Annually

INFORMATION

This is recommended to prolong the life of the machine but not required.

- Schedule an overall check up.
  (Voltage, wear and tear, etc.....)

1.2 Cleaning the rollers

Tools required

- Protective rubber gloves
  (protect your hands from the isopropyl alcohol)
- 80% isopropyl alcohol
  (or mild dishwashing detergent and water)
- Rubber cement eraser
  (or belt sander dressing block may be used)
- Several 100% cotton terry cloths
  (best for lint free cleaning)

CAUTION

Use only isopropyl alcohol or rubber cement eraser to clean the rollers. Harsh chemicals like toluene, acetone, or MEK can destroy the silicone covering of the rolls.

Cleaning the rollers

CAUTION

Only the person cleaning the rollers may control the function of the machine.

a) Turn the **MAIN POWER** to the " **I** " position.

WARNING

Caution should always be exercised when using the laminator with the safety shields removed. You can be seriously HURT or INJURED!

b) Remove the main roller safety shield, pressure plate and feed table.

c) For pressure sensitive adhesives: put on the rubber gloves and use isopropyl alcohol and a terry cloth towel.

d) For thermal adhesives: while the laminator is at normal operating temperature, put on the rubber gloves and use the rubber cement eraser. This allows the eraser to bead up the adhesive.

CAUTION

Excessive pressure can destroy the silicone layer by pressing to hard or scrubbing too long in one spot.

CAUTION

Do NOT pick or pull heat activated adhesive off the rolls when they are cold. You can cause irreparable damage to the laminating rolls.

INFORMATION

When cleaning the lower main roller, replace the feed table and press REVERSE. When cleaning the lower pull roller, press RUN to rotate the roller then press STOP. This will prevent anything from being pulled into the nip.

WARNING

When operating the laminator using the footswitch, keep hands and fingers away from the nip of the rollers. You may be CRUSHED or BURNED!

e) Since the safety shield has been removed, you must replace the feed table and use the footswitch to rotate the bottom rollers after cleaning a section.

CAUTION

Footswitch speed is limited when the safety shield is in the raised position or removed.

WARNING

When operating the laminator using the footswitch, keep hands and fingers away from the nip of the rollers.
You may be CRUSHED or BURNED!

f) Allow the laminator to cool slightly to no higher than 110°F (43°C) or cool to the touch.

h) For the lower rollers, replace the feed table and rotate the rollers to an uncleaned area using the footswitch.

CAUTION

Use only isopropyl alcohol or rubber cement eraser to clean the rollers. Harsh chemicals like toluene, acetone, or MEK can destroy the silicone covering of the rolls.

CAUTION

Footswitch speed is limited when the safety shield is in the raised position or removed.

g) With the rubber gloves on, clean the rolls using a moderate amount of 80% isopropyl alcohol on a cotton terry cloth.

CAUTION

Exercise care when cleaning the laminating rollers with 80% isopropyl alcohol:

- **Use only in a well ventilated area**
- **Wear rubber gloves**
- **Use only on cool rolls**

CLEANING HEATED ROLLERS CAN IGNITE THE FUMES!

1.3 Clean the cabinets and covers

ELECTRICAL SHOCK

Remove power from the laminator before cleaning. You can be severely shocked, electrocuted or cause a fire.

a) Use a damp cotton terry cloth (water only), clean the exterior of the laminator.

b) If water is not strong enough, you may use a mild dishwashing detergent with water and a cotton terry cloth.

ELECTRICAL SHOCK

Do not use liquid or aerosol cleaners on the laminator. Do not spill liquid of any kind on the laminator. You can be severely shocked, electrocuted or cause a fire. Use only a damp cloth for cleaning unless other wise specified.

1.4 Cleaning the control panel

ELECTRICAL SHOCK

Remove power from the laminator before cleaning. You can be severely shocked, electrocuted or cause a fire.

a) Use only a slightly damp (water only) non abrasive cloth.

b) The same type of cloth used to clean eye glasses may be used instead.

ELECTRICAL SHOCK

Do not use liquid or aerosol cleaners on the laminator. Do not spill liquid of any kind on the laminator. You can be severely shocked, electrocuted or cause a fire. Use only a damp cloth for cleaning unless other wise specified.

1.5 Lubrication

ELECTRICAL SHOCK

Remove power from the laminator before servicing. You can be severely shocked, electrocuted or cause a fire.

CAUTION

Lubrication should only be performed by qualified person(s).

Tools required

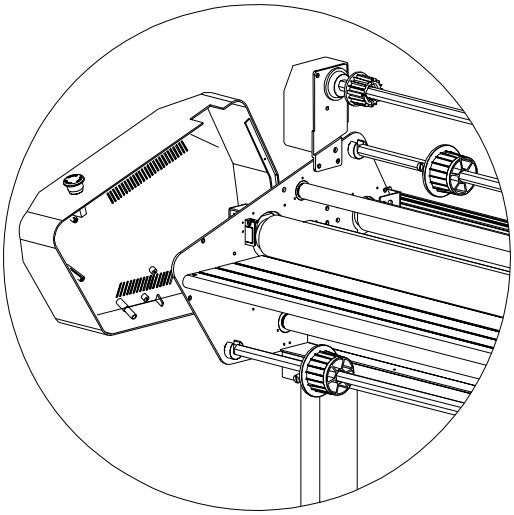
- 17 mm wrench
- # 2 phillips screwdriver
- Small flat tip screwdriver
- Light chain oil

INFORMATION

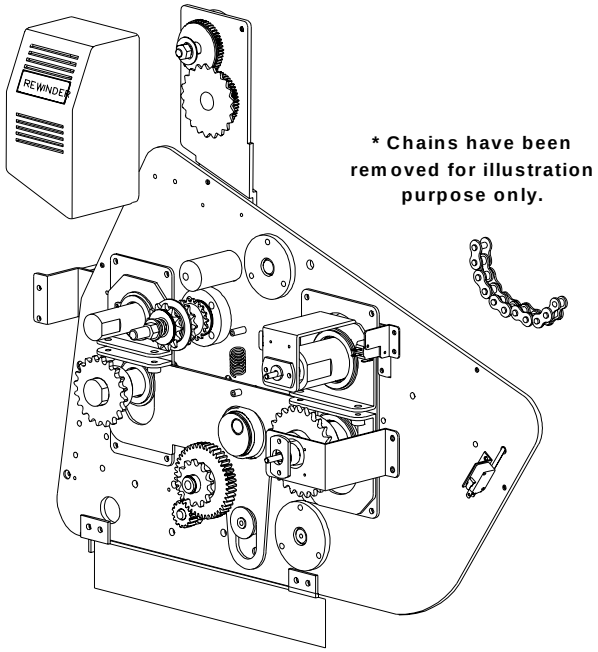
Over lubricating can be just as damaging as having no lubrication.

a) With a #2 phillips head screw driver, remove the drive side cabinet and rewind cover.

b) Use a small flat tip screw driver to remove the contact block from the emergency stop button.



c) Lightly lubricate all chains (3) and sprockets (9).



d) When finished, replacethe drive side cabinet.

2.0 Calibrations

WARNING

Do not wear ties, loose fit clothing or dangling jewelry while operating or servicing the laminator. These items can get caught in the nip and choke you or you can be crushed or burned.

CAUTION

Only the primary person (person performing the calibration) may control the functions of the lamintor during any calibration procedure!

Calibrations ensure the optimal performance of the machine during operation. All procedures in this section should only be performed by a qualified service technician (Qualified is described in Section 1).

The following procedures are described in this section; Main roller nip, Pull roller nip, Clutch tensioning and Temperature calibration.

ELECTRICAL SHOCK

Always exercise extreme caution when performing calibration procedures. Cabinets, panels and covers must be removed and power to the machine is ON.

2.1 Main roller nip

This calibration ensures the main rollers nip is even from left to right. Main roller nip should be performed at time of installation.

Tools required

- Two rolls of thermal film (see film width below) T110 = 41 in. rolls / T165 = 51 in. rolls
- 2.5 mm allen wrench
- 3 mm allen wrench
- 5 mm allen wrench
- # 2 phillips screwdriver
- Small flat tip screwdriver

CAUTION

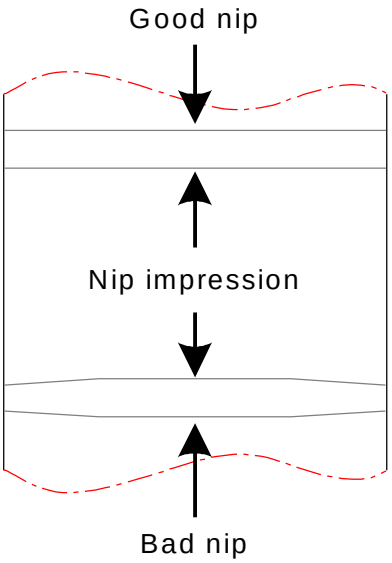
Always practice lock out/ tag out procedures when performing service related work.

a) Set up he machine as you would for two sided thermal encapsulation.

b) After webbing the machine, run about 1 ft. of material through and then stop for about 30 seconds.

c) After aproximately 30 seconds, run the web out until the nip impression in the laminate exceeds the pull rollers by 1 ft.

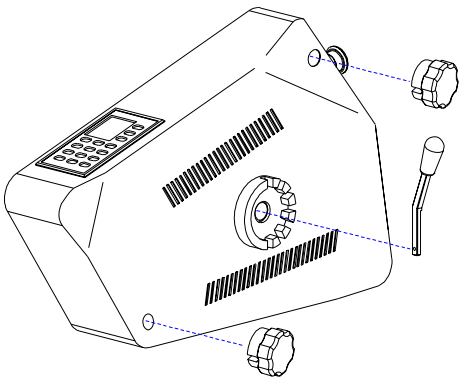
d) Inspect the nip impression in the web of the laminate for eveness across the entire width. If the thickness of the nip impression looks even, STOP here. If not, continue with next step.



e) With a 3 mm allen wrench, remove the lift handle from the control side cabinet.

f) With a 2.5 mm allen wrench, remove the upper and lower unwind brake handles.

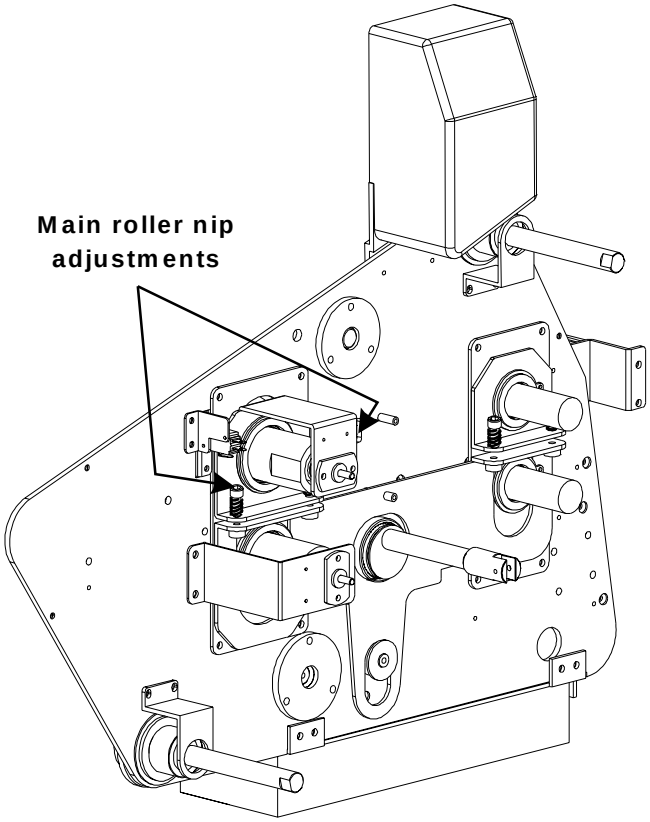
g) With a #2 phillips head screw driver, remove both cabinets.



h) Use the small flat tip screw driver to remove the contact block to the emergency stop buttons.

i) Use the small flat tip screw driver to remove the control panel from the cabinet.

j) Adjust the springs on the lift assembly plate for the main rollers as needed to achieve an even nip impression across the width of the web.



k) When finished, replacethe drive side cabinet, the control side cabinet, the unwind brake handles and the lift handle.

2.2 Pull roller nip

This calibration ensures the pull rollers nip is even from left to right. Pull roller nip should be performed at time of installation.

Tools required

- Two rolls of thermal film (see film width below)
  T110 = 41 in. rolls / T165 = 51 in. rolls
- 2.5 mm allen wrench
- 3 mm allen wrench
- 5 mm allen wrench
- # 2 phillips screwdriver
- Small flat tip screwdriver

CAUTION

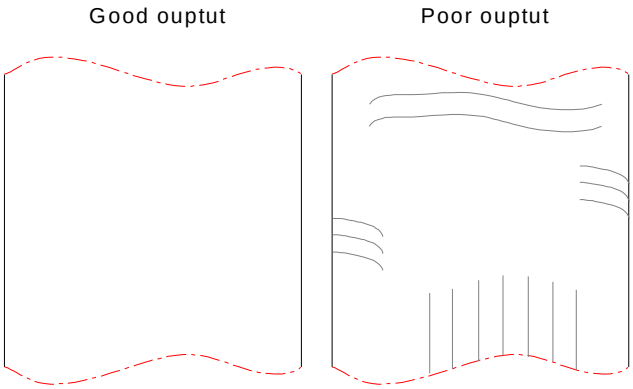
Always practice lock out/ tag out procedures when performing service related work.

a) Set up he machine as you would for two sided thermal encapsulation.

b) After webbing the machine, run the machine while observing the quality of the output without paper, then with paper. If the output quality is good, STOP. If not, continue with the next step.

INFORMATION

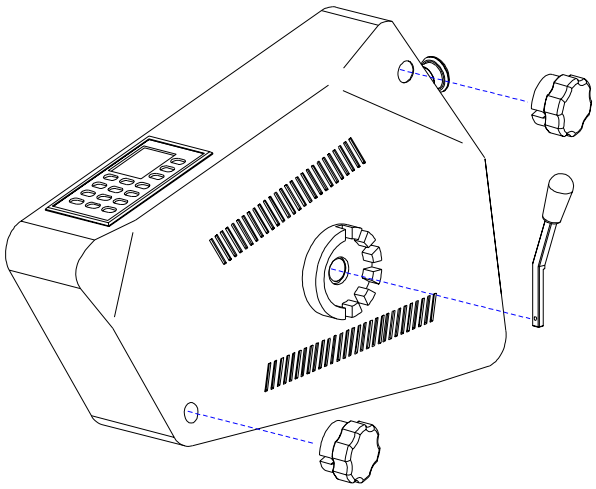
Any waves in the laminate and/ or waves at the main roller nip constitute poor output.



c) With a 3 mm allen wrench, remove the lift handle from the control side cabinet.

d) With a 2.5 mm allen wrench, remov ethe upper and lower unwind brake handles.

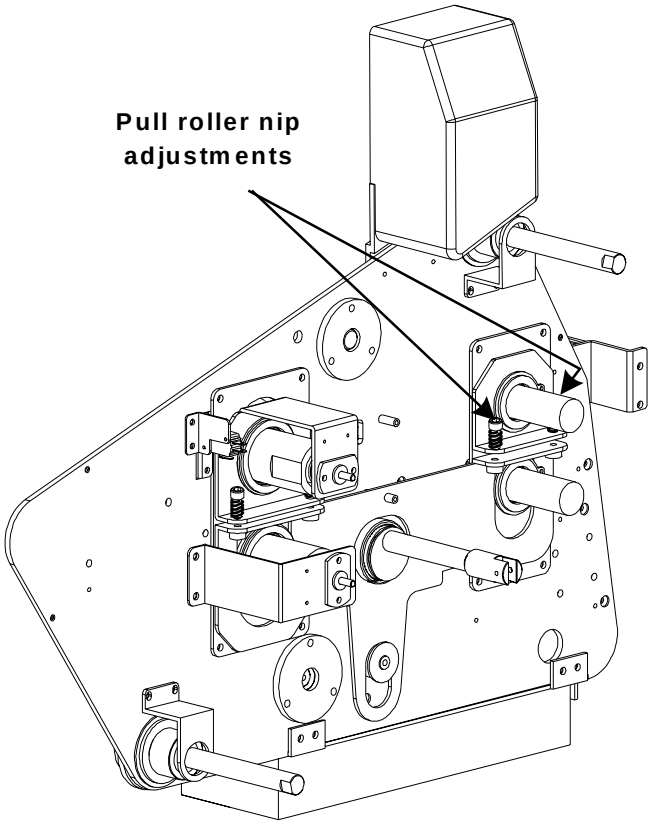
e) With a #2 phillips head screw driver, remove both cabinets.



f) Use the small flat tip screw driver to remove the contact block to the emergency stop buttons.

g) Use the small flat tip screw driver to remove the control panel from the cabinet.

h) Adjust the springs on the lift assembly plate for the pull rollers as needed to achieve satisfactory output quality.



i) When finished, replacethe drive side cabinet, the control side cabinet, the unwind brake handles and the lift handle.

2.3 Clutch adjustment

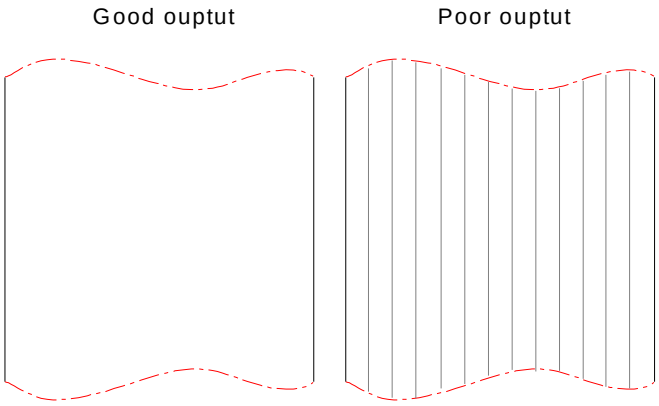
This calibration adjusts the tension of the web between the main rollers and the pull rollers.

Tools required

- Two rolls of thermal film (see film width below)
  T110 = 41 in. rolls / T165 = 51 in. rolls
- 17 mm wrench
- # 2 phillips screwdriver
- Small flat tip screwdriver

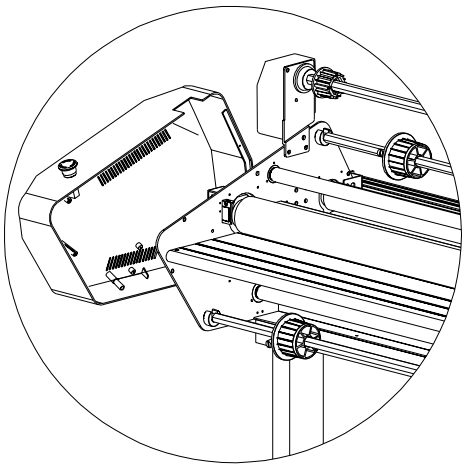
a) Set up he machine as you would for two sided thermal encapsulation.

b) After webbing the machine, run the machine while observing the quality of the output. If the output quality is good, STOP. If not, continue with the next step.

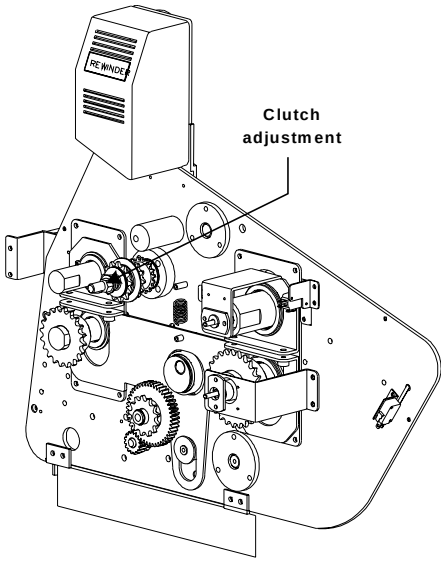


c) With a #2 phillips head screw driver, remove the drive side cabinet.

d) Use the small flat tip screw driver to remove the contact block to the emergency stop buttons.



e) Adjust the nut on the end of the clutch assembly as needed to achieve satisfactory output quality.
(To increase clutch, loosen / tighten to decrease)



f) When finished, replacethe drive side cabinet.

2.4 Temperature calibration

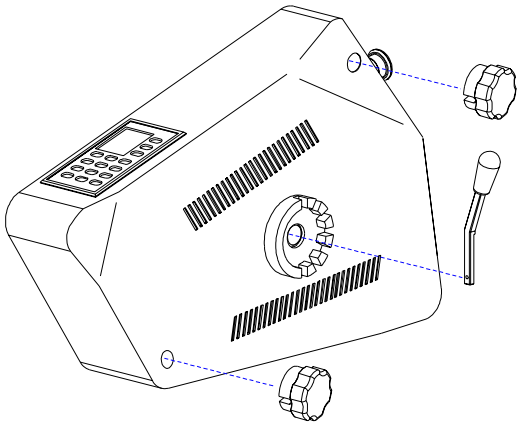
This calibration adjusts the temp displays to properly reflect the heater temperatures.

Tools required

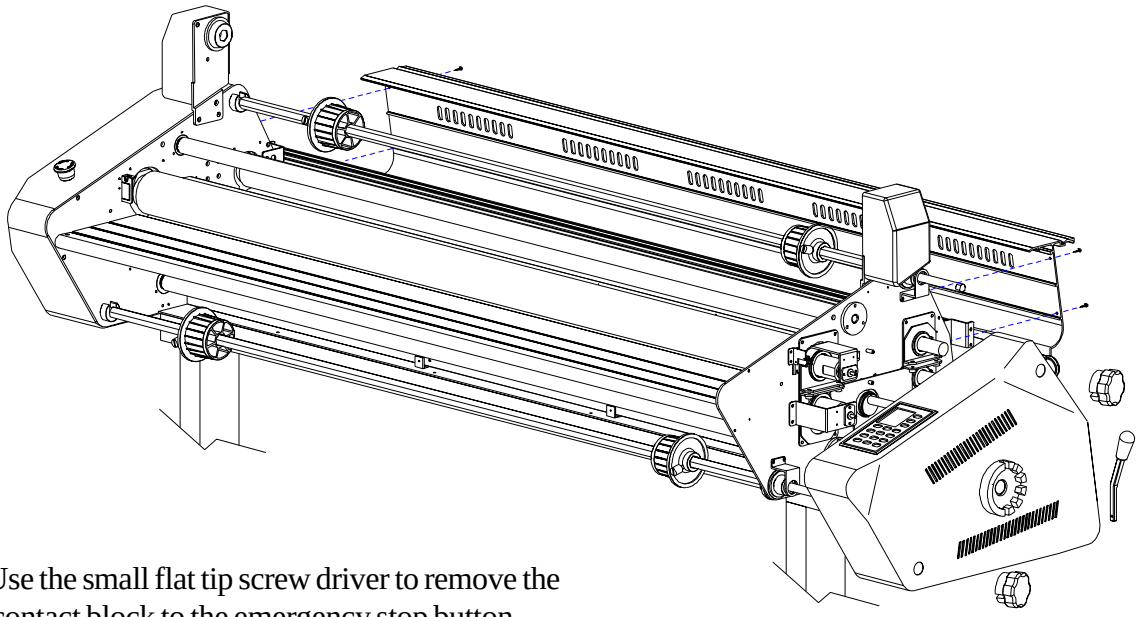
- Small flat tip screw driver
- 2.5 mm allen wrench
- 3 mm allen wrench
- # 2 phillips screwdriver
- Small flat tip screwdriver
- GMP Heat Calibration Box

a) With a 3 mm allen wrench, remove the lift handle from the control side cabinet.

b) With a 2.5 mm allen wrench, remove the upper and lower unwind brake handles.



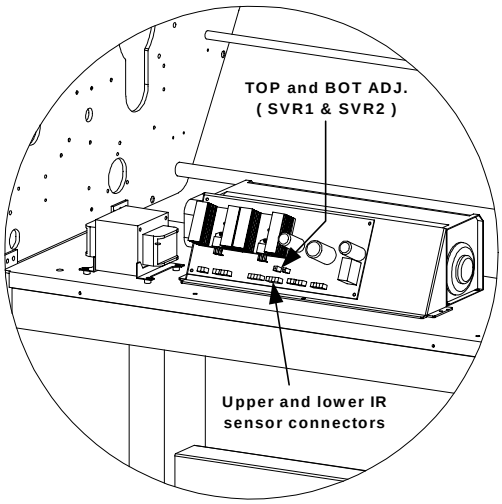
c) With a #2 phillips head screw driver, remove the control side cabinet.



d) Use the small flat tip screw driver to remove the contact block to the emergency stop button.

e) With a #2 phillips screw driver, remove the rear panel cover.

f) Disconnect the upper IR sensor and connect the calibration box.



g) Depress and hold down the MEAS button, if the display reading is 248 °F (120 °C) goto next step. If not, release the MEAS button and adjust SVR1 to obtain a display reading of 248 °F (120 °C).

INFORMATION

Clockwise to increase, counterclockwise to decrease.

h) Disconnect the calibration box and reconnect the upper IR sensor.

i) Disconnect the lower IR sensor and connect the calibration box.

j) Depress and hold down the MEAS button, if the display reading is 230 °F (110 °C) goto next step. If not, release the MEAS button and adjust SVR1 to obtain a display reading of 230 °F (110 °C).

k) Disconnect the calibration box and reconnect the lower IR sensor.

l) Replace the rear panel cover, the control side cabinet, the unwind brake handles and the lift handle.

3.0 Changing parts

The procedures in this section are written in a simplified and direct format. In this section you will find procedures for removing and replacing the cabinets, changing the heaters, the upper rollers and the lower rollers.

ELECTRICAL SHOCK

Remove power from the laminator before servicing. You can be severely shocked, electrocuted or cause a fire.

Any part changing procedure not covered in this manual can be provided within a reasonable time. Please contact the **GBC Technical Service Center at 1-888-231-2211** for assistance.

WARNING

Do not wear ties, loose fit clothing or dangling jewelry while operating or servicing the laminator. These items can get caught in the nip and choke you or you can be crushed or burned.

3.1 Cabinets

Before any part changing procedure can be performed, the cabinets and/or covers must be removed. After any part changing procedure is completed, the cabinets and/ or covers must be replaced.

CAUTION

Always practice lock out/ tag out procedures when performing service related work.

The following procedures will be applied to each part changing procedure as required.

CAUTION

Only remove the cabinet and/or cover required to perform the task. Exposed components are susceptible to damage during a procedure.

CAUTION

Changing parts should only be performed by qualified person(s).

3.1.1 Remove the cabinets

Tools required

- 3 mm allen wrench
- 2.5 mm allen wrench
- Small flat tip screw driver
- #2 phillips head screw driver
- Second person

a) Use the 3 mm allen wrench to remove the lift handle on the control side cabinet.

b) Use the 2.5 mm allen wrench to loosen the two set screws on each on the tension handles on the control side.

c) While the second person is holding the control side cabinet, remove the six screws securing the cabinet to the frame with a #2 phillips screw driver.

d) Disconnect the contact block to the emergency stop push button using a flat tip screw driver and set the control side cabinet in a safe place.

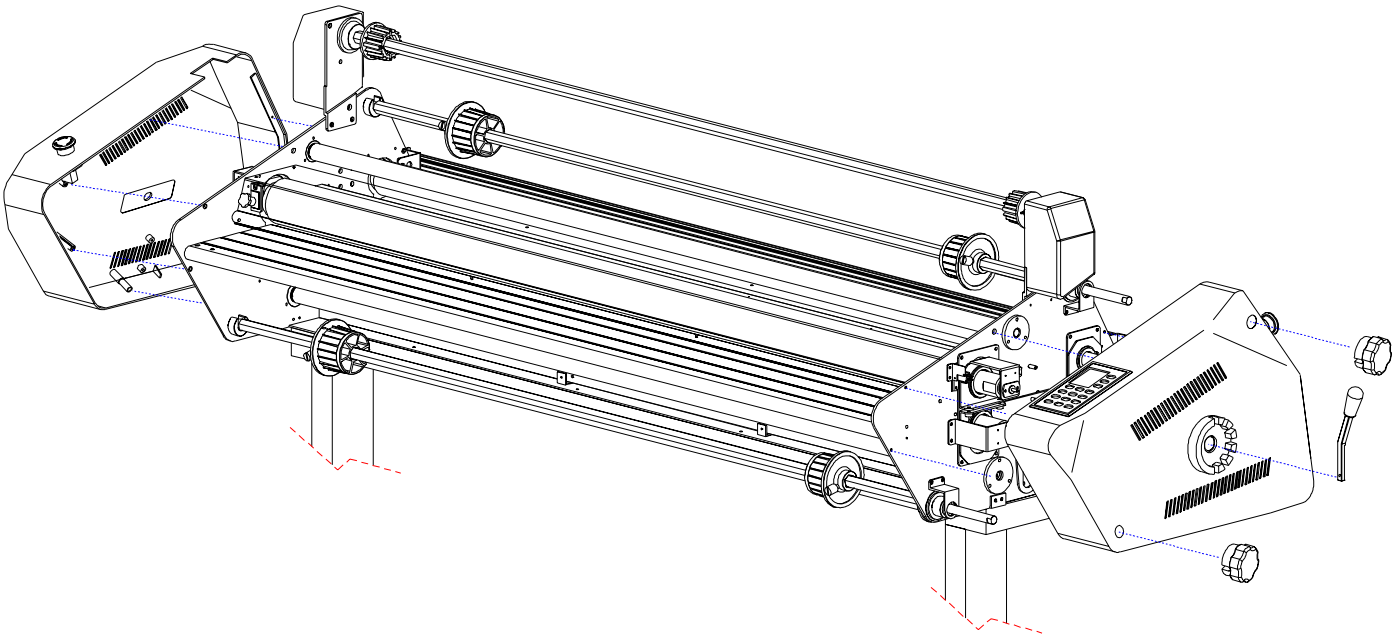
e) Disconnect the control panel cable from the back of the control panel circuit board.

CAUTION

Do not pull on the wire in attempt to disconnect the cable!

f) While the second person is holding the drive side cabinet, remove the six screws securing the cabinet to the frame with a #2 phillips screw driver.

g) Disconnect the contact block from the emergency stop push button using the flat tip screw driver and set the drive side cabinet in a safe place.



3.1.2 Replace the cabinets

Tools required

- 3 mm allen wrench
- 2.5 mm allen wrench
- #2 phillips head screw driver

a) While the second person is holding the control side cabinet, connect the contact block to the emergency stop push button and the display panel cable to the control panel circuit board.

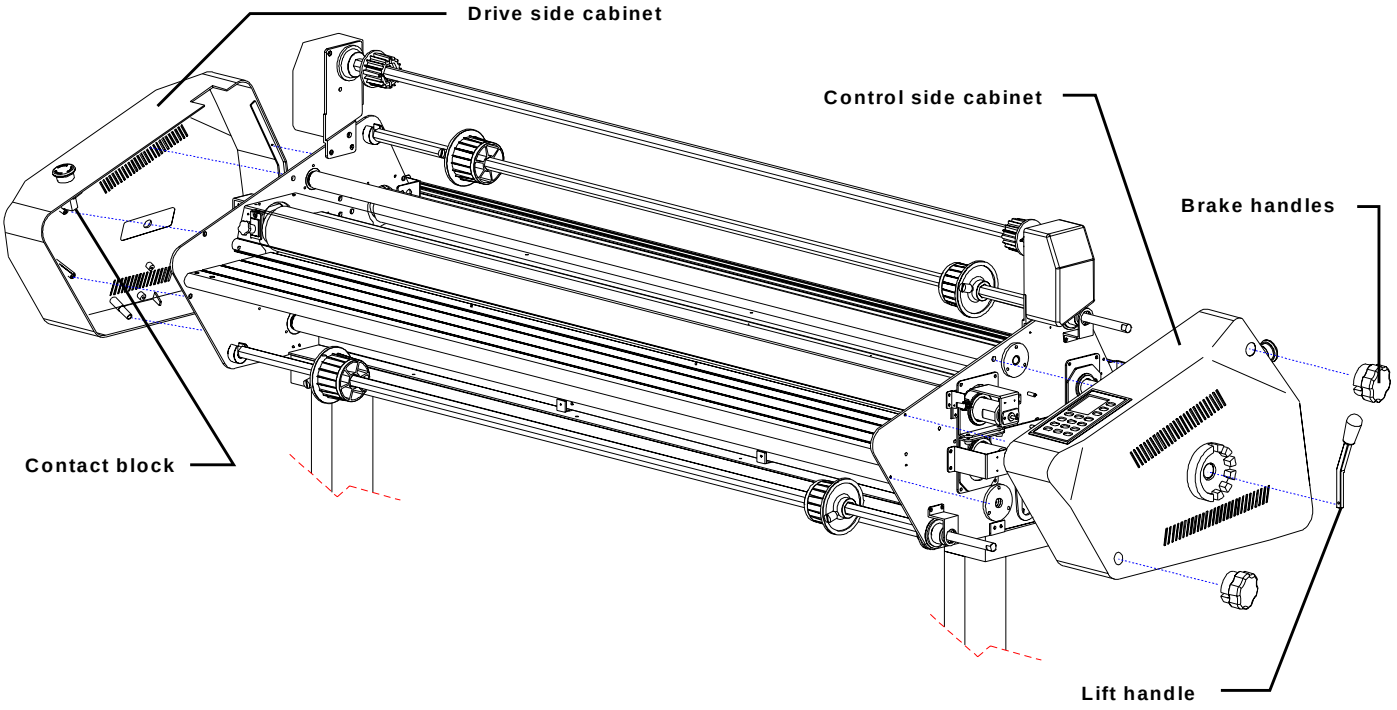
b) Have the second person align the holes of the control side cabinet with the holes on the side frame while you secure it using the #2 phillips head screw driver.

c) While the second person is holding the drive side cabinet, connect the contact block to the emergency stop push button.

d) Have the second person align the holes of the drive side cabinet with the holes on the side frame while you secure it using the #2 phillips head screw driver.

e) Replace the upper and lower unwind brake handles and secure in place using a 2.5 mm allen wrench to tighten the set screws.

f) Replace the main roller lift handle and secure in place using a 3 mm allen wrench to tighten the screw.



3.2 Heaters

WARNING

Do not perform this procedure unless the heaters have remained off for a minimum of 4 hours.

Tools required

- 8 mm wrench
- 1 pair safety gloves
- #2 phillips screw driver

3.2.1 Removing the heater(s)

a) Remove all power to the laminator.

b) Remove the cabinets as described in **Section 3.1.1**.

c) Remove the nut securing the heater wire to the end of the heater being removed using an 8 mm wrench. Do this for both sides.

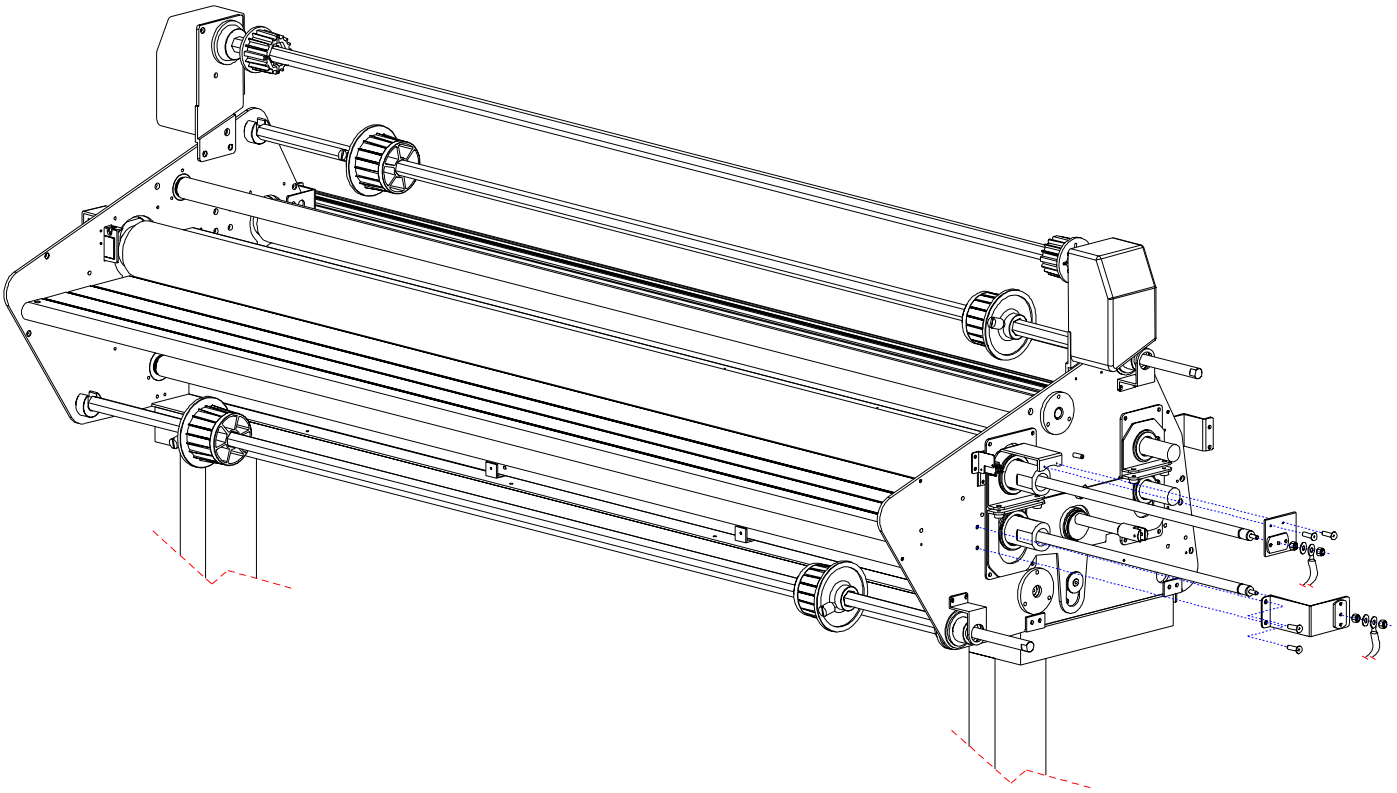
d) Use the 8 mm wrench to remove the nut securing the heater to the heater support plate. Do this for both sides.

e) On the control side only: (upper) Remove the two phillips head screws securing the heater bracket to the heater support arm. (lower) Remove the two phillips head screws securing the heater support arm from side frame.

CAUTION

Always wear safety gloves when handling glass quartz heaters.

f) Carefully slide the heater out from the control side.



3.2.2 Replacing the heater(s)

CAUTION

Ensure the nut is secure on the heater! Loose connection may cause thermal build up

a) If installing new heaters, remove the two nuts and two flat washers from both ends proir to installing the new heaters

b) Carefully slide one end of the heater into the machine from the control side.

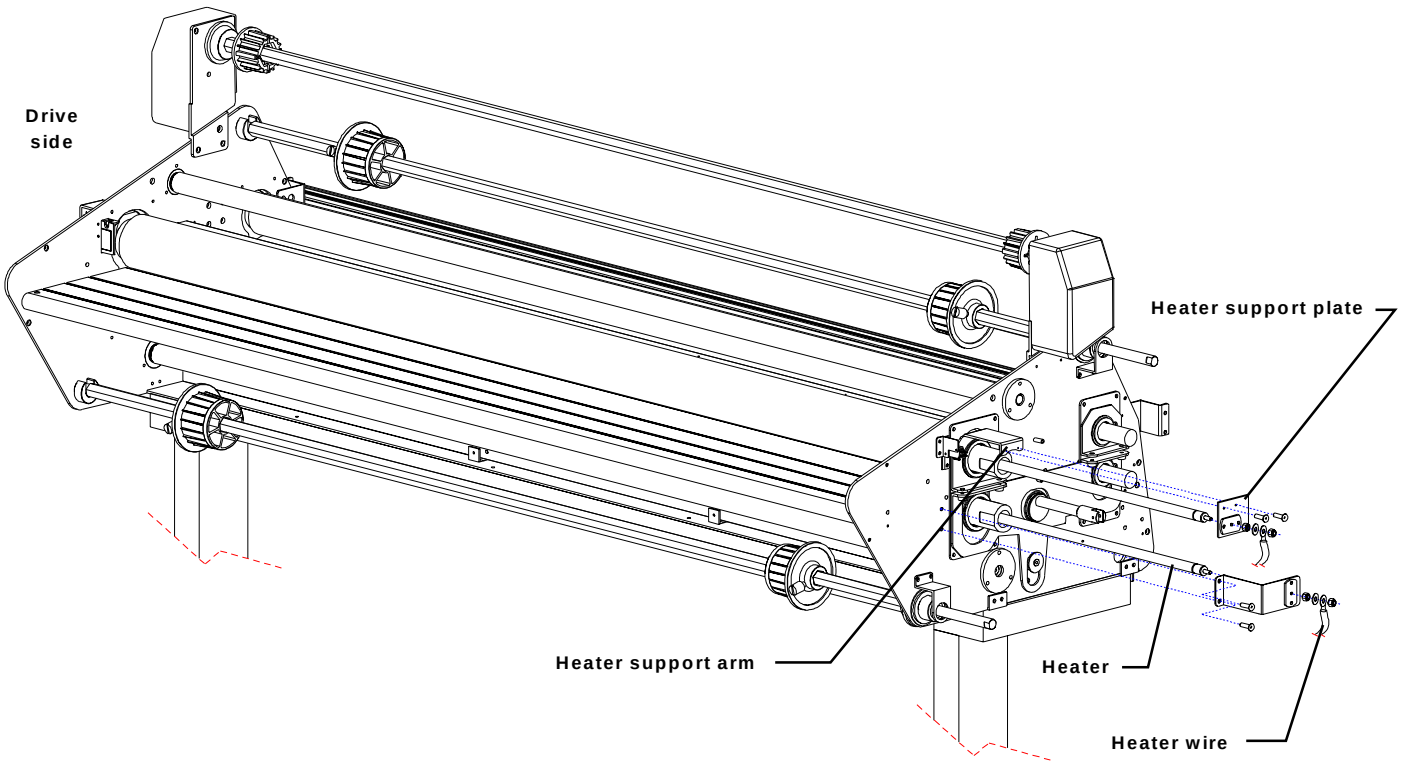
c) Once the heater has reached the end of the drive side, guide the threaded shaft of the heater through the hole of the heater support plate.

d) Replace the heater bracket to the heater support arm and secure in place with the two phillips head screws.

e) Replace one nut and one flat washer on the heater. This should be positioned about 1/4 inch in from the end of the threaded stud. Do this for both sides.

f) Replace the heater wire, slide the second flat washer then the remaining nut and secure all in place with an 8 mm wrench. Do this for both sides.

g) Replace the cabinets as described in **Section 3.1.2**.



3.3 Upper rollers

Tools required

- One set metric allen wrenches
- Snap ring pliers
- Rubber mallet
- Second person

3.3.1 Removing the upper roller(s)

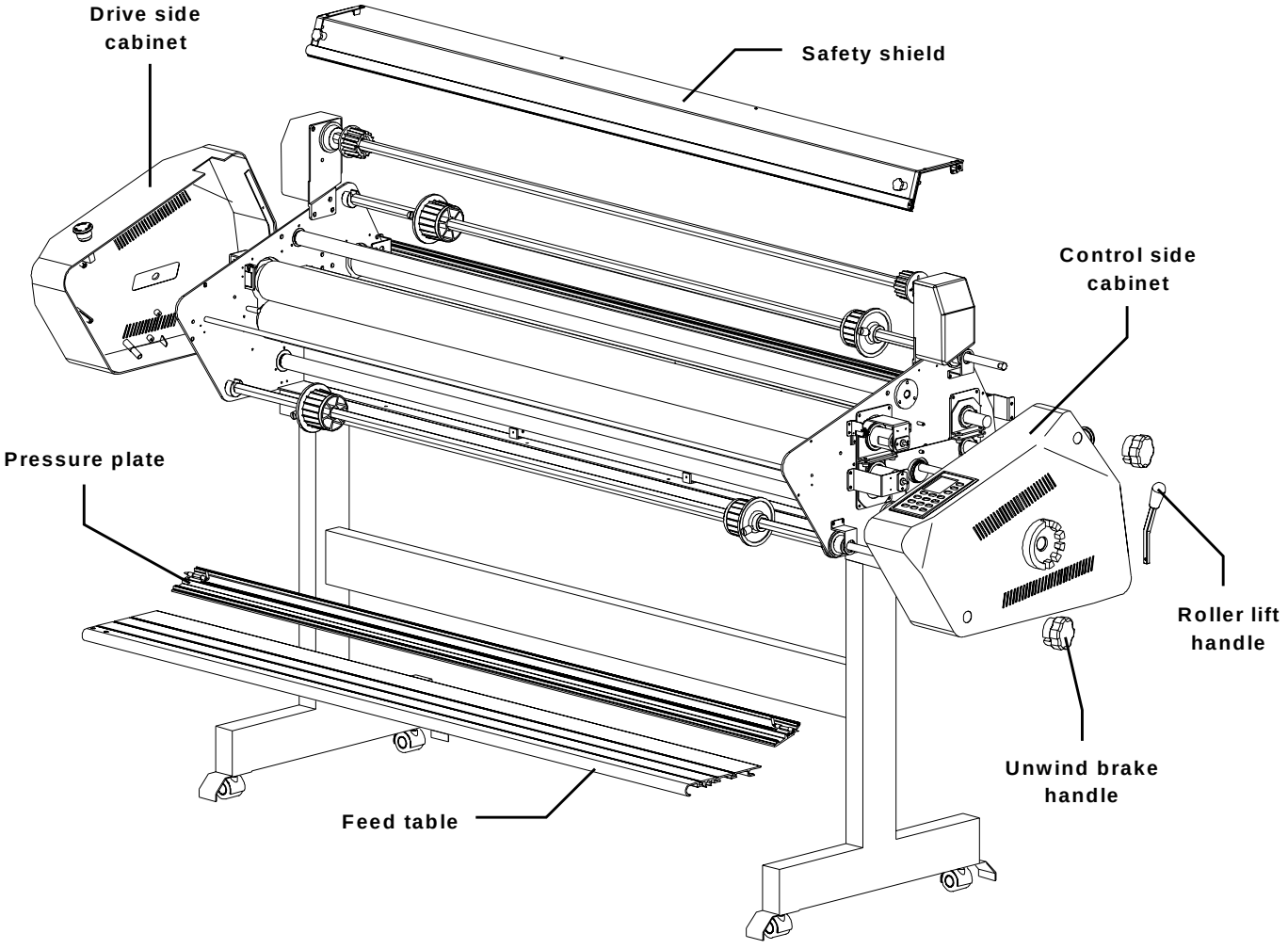
a) Lower the rollers, then remove the cabinets as described in **Section 3.1.1**.

b) Remove the pressure plate by pulling in on the two locator pins.

c) Remove the front feed table by pulling on the safety pin located under the table on the drive (left) side of the machine from the front opoerating position.

d) Remove the front safety shield by rasing the shield then pull on the locater pin located on the control (right) side of the machine from the front operating position.

e) Remove the upper and lower heaters as described in **Section 3.2.1**.



f) Control side only: With a #2 phillips head screw driver, remove the upper bolt securing the lift plate spring.

g) Control side only: With a #2 phillips head screw driver, remove the bolt and washer to the lift plate guide.

h) Control side only: Use the snap ring pliers to remove the two snap rings on the main roller and the two snap rings on the pull rollers.

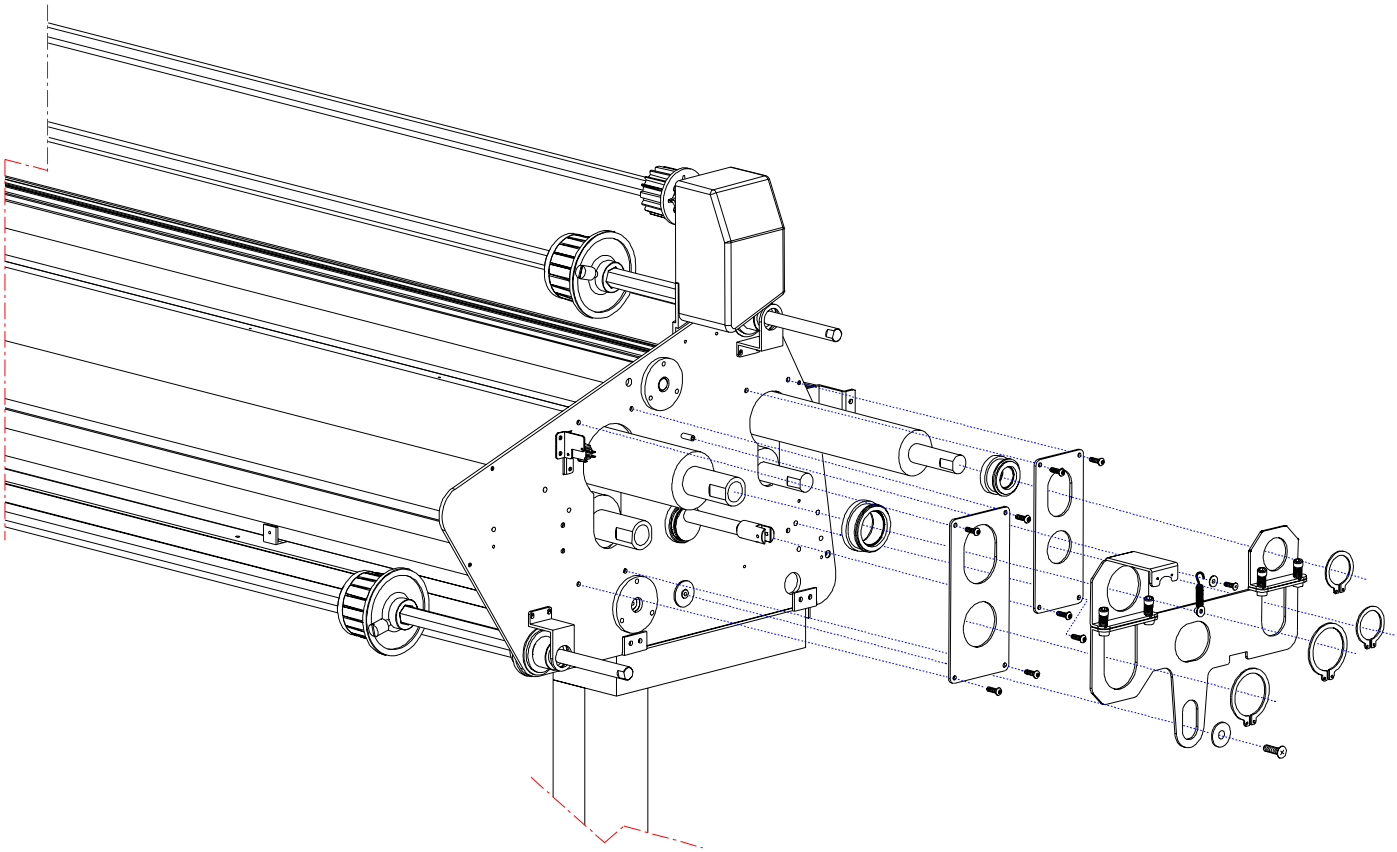
i) Remove the main roller and pull roller port plates using a 4 mm allen wrench.

j) Carefully slide the upper roller roller bearings off.

k) Carefully slide the upper rollers out towards the control side roller ports.

INFORMATION

The drive side roller bearings are not secured to the roller journal ends.



3.3.2 Replacing the upper roller(s)

a) Carefully replace the roller from the control side of the machine.

b) Replace the upper roller bearings on the control side journal end. The drive side's roller bearings are still in the drive side lift assembly.

c) Replace the roller port plate and secure in place with the four hex bolts and tighten using a 4 mm allen wrench.

d) Replace the lift plate assembly by aligning the proper bearings with thier perspective counter parts.

e) Secure the lift plate spring and tighten the phillips head bolt using a #2 phillips head screw driver.

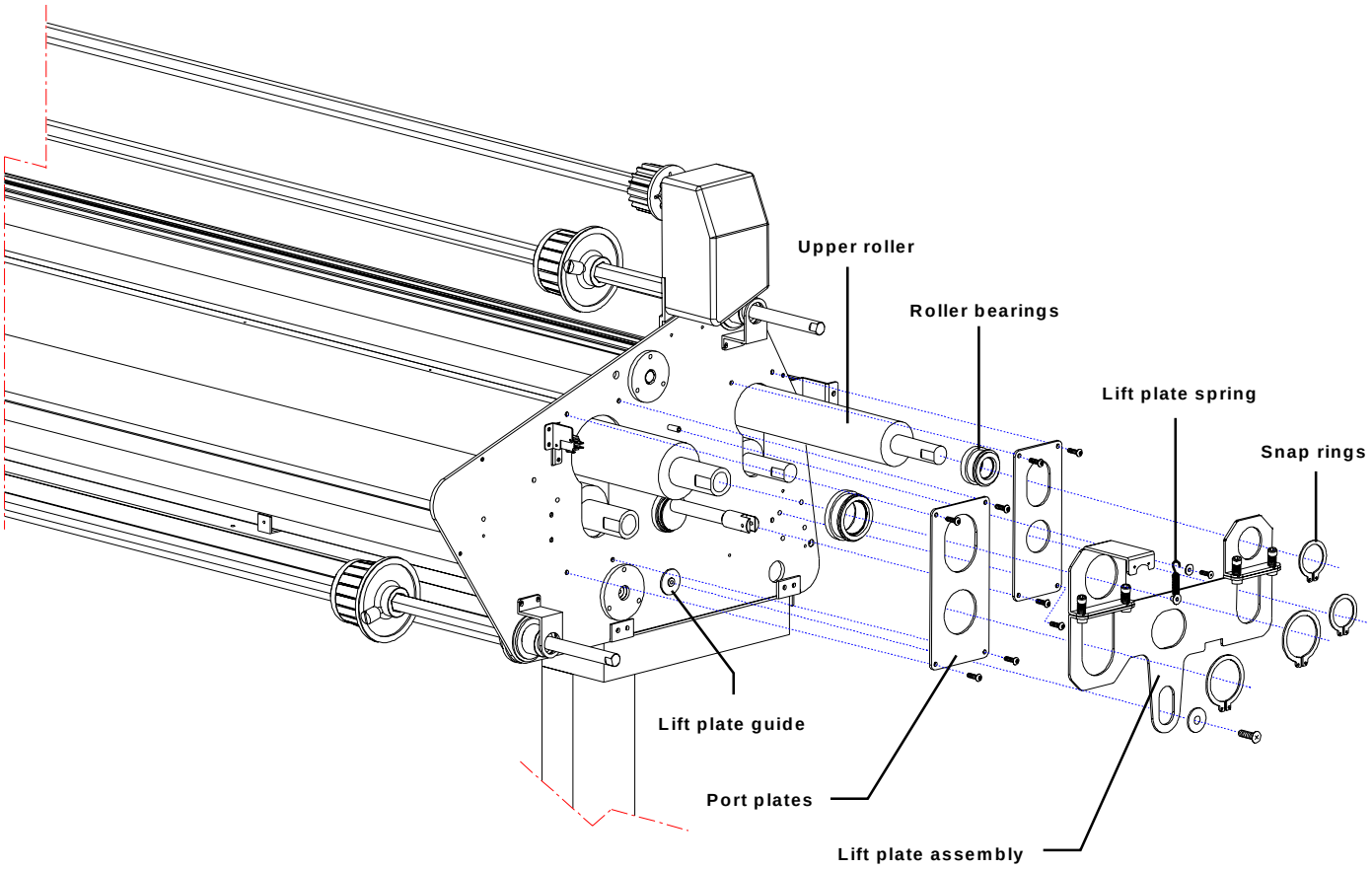
f) Replace the washer and bolt to the lift plate guide and secure in place with the #2 phillips head screw driver..

g) Align the lower roller sprockets with their related sprockets and secure the set screws using a 3 mm allen wrench.

h) Replace the heaters as described in **Section 3.2.2**.

i) Replace the cabinets as described in **Section 3.1.2**.

j) Replace the safety shield, feed table and pressure plate.



3.4 Lower rollers

Tools required

- One set metric allen wrenches
- 17 mm wrench
- Rubber mallet
- Second person

3.3.1 Removing the lower roller(s)

a) Lower the rollers, then remove the cabinets as described in **Section 3.1.1**.

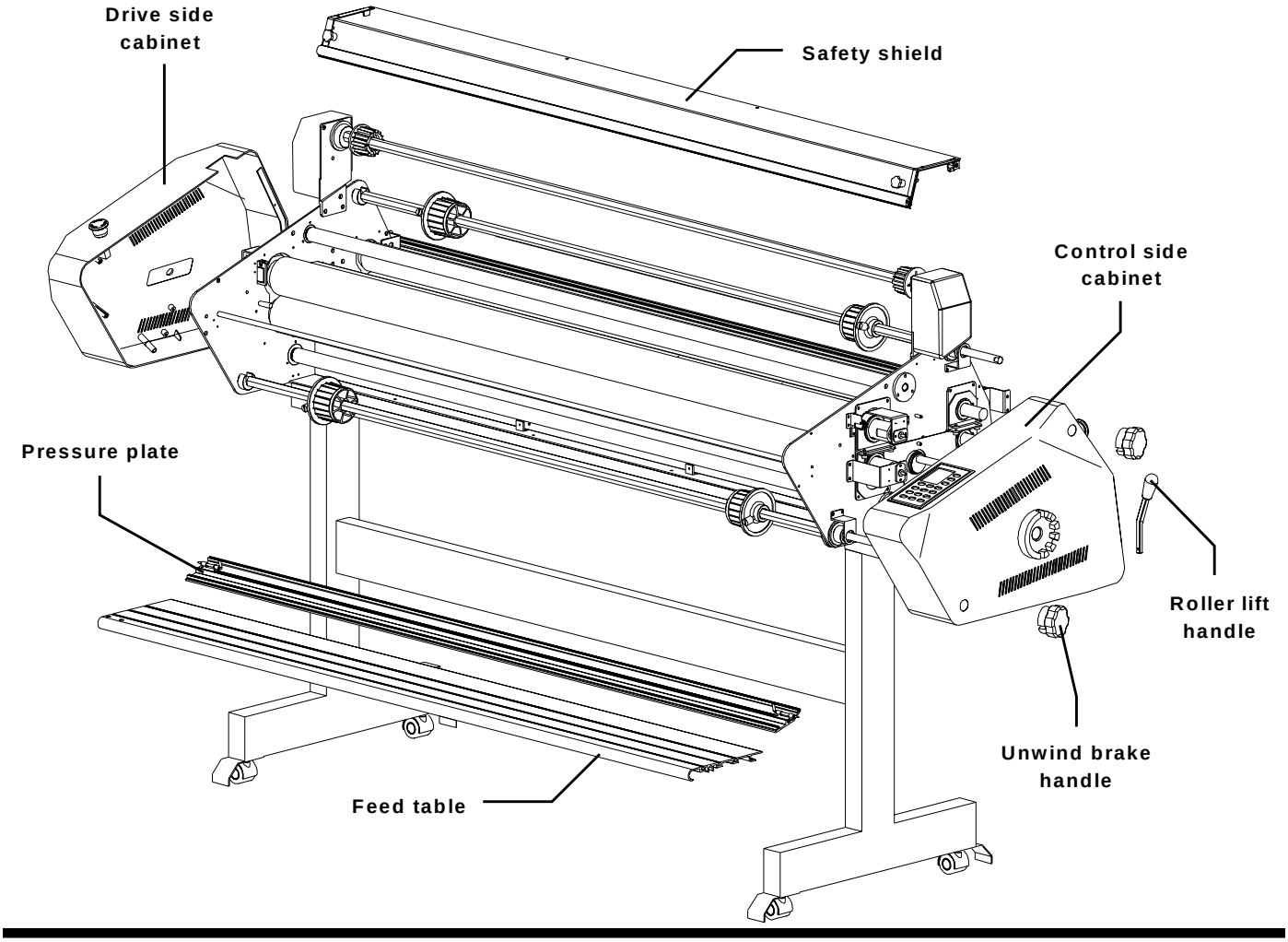
b) Remove the pressure plate by pulling in on the two locator pins.

c) Remove the front feed table by pulling on the safety pin located under the table on the drive (left) side of the machine from the front opoerating position.

d) Remove the front safety shield by rasing the shield then pull on the locater pin located on the control (right) side of the machine from the front operating position.

e) Remove the upper and lower heaters as described in **Section 3.2.1**.

f) Remove the upper rollers as described in **Section 3.3.1**.



INFORMATION

If your chain has a master link, you may remove the chain by disconnecting the master link.

g) Use a 6 mm allen wrench to remove the bolt and washer to the gear reducer sprocket assembly.

h) Use a 17 mm wrench to remove the nut, washer, spring, thrust washer and sprocket from the clutch assembly.

i) Use a 3 mm allen wrench to loosen the set screws to the lower pull roller and lower main roller sprockets.

j) Carefully remove the chains and sprockets associated with the lower rollers.

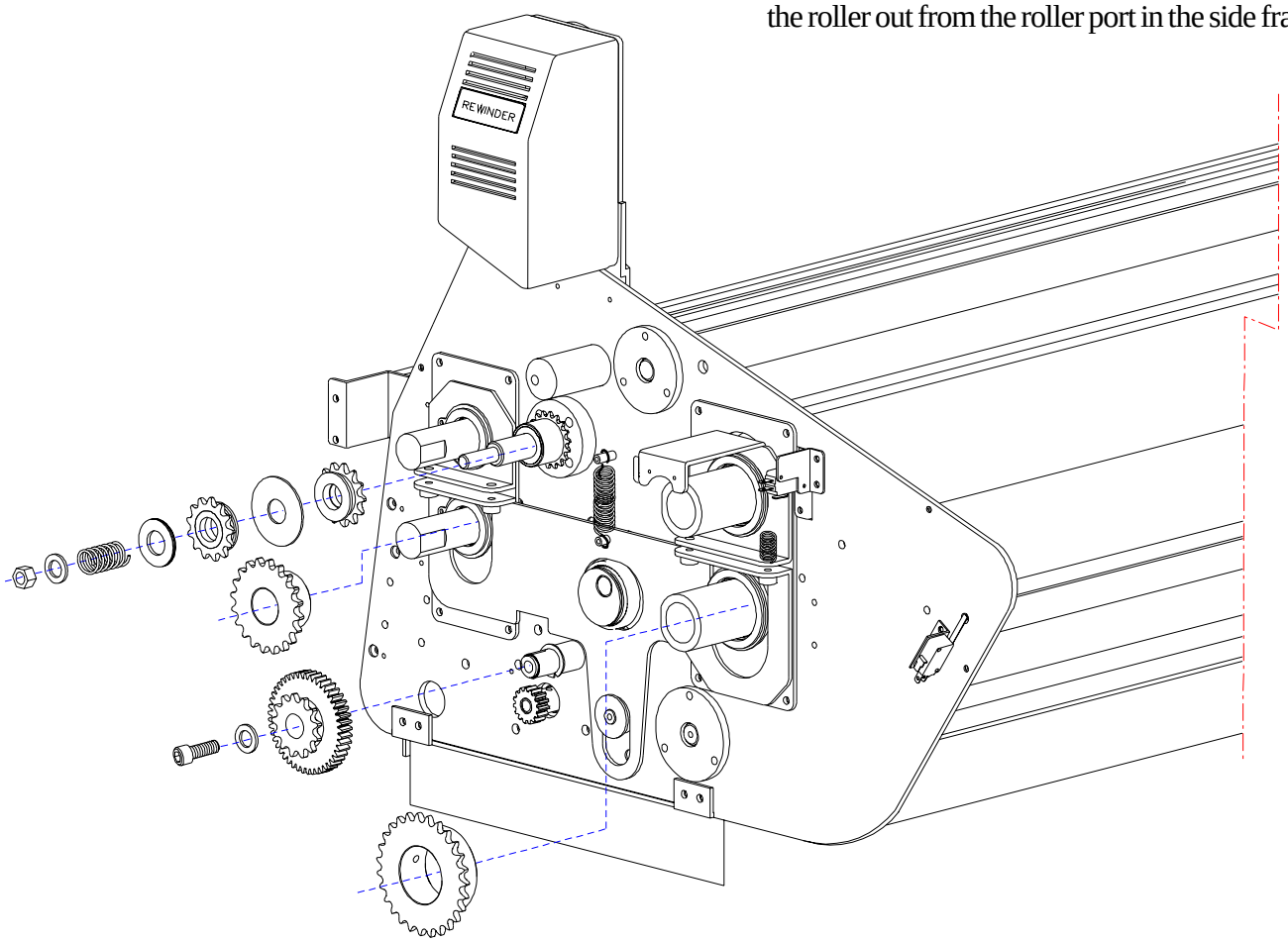
k) With a #2 phillips head screw driver, remove the upper bolt securing the lift plate spring.

l) With a #2 phillips head screw driver, remove the bolt and washer to the lift plate guide.

m) Use the snap ring pliers to remove the two snap rings on the main roller and the two snap rings on the pull rollers.

n) Remove the main roller and pull roller port plates using a 4 mm allen wrench.

o) Carefully lift up the lower roller then carefully slide the roller out from the roller port in the side frame.



3.4.2 Replacing the lower roller(s)

a) Replace the lower roller bearings on both ends of the roller.

b) Carefully replace the roller from the control side of the machine. The roller bearing should be shouldered against the inside of the side frmae.

c) Replace the drive side roller port plate and secure in place with the four hex bolts and tighten using a 4 mm allen wrench.

d) Replace the drive side lift plate assembly and secure in place with the snap ring.

e) Secure the lift plate spring and tighten the phillips head bolt using a #2 phillips head screw driver.

f) Replace the washer and bolt to the lift plate guide and secure in place with the #2 phillips head screw driver..

g) Carefully replace the chain and the three sprockets associated with the lower pull roller drive.

h) Carefully replace the chain and the two sprockets associated with the lower main roller drive.

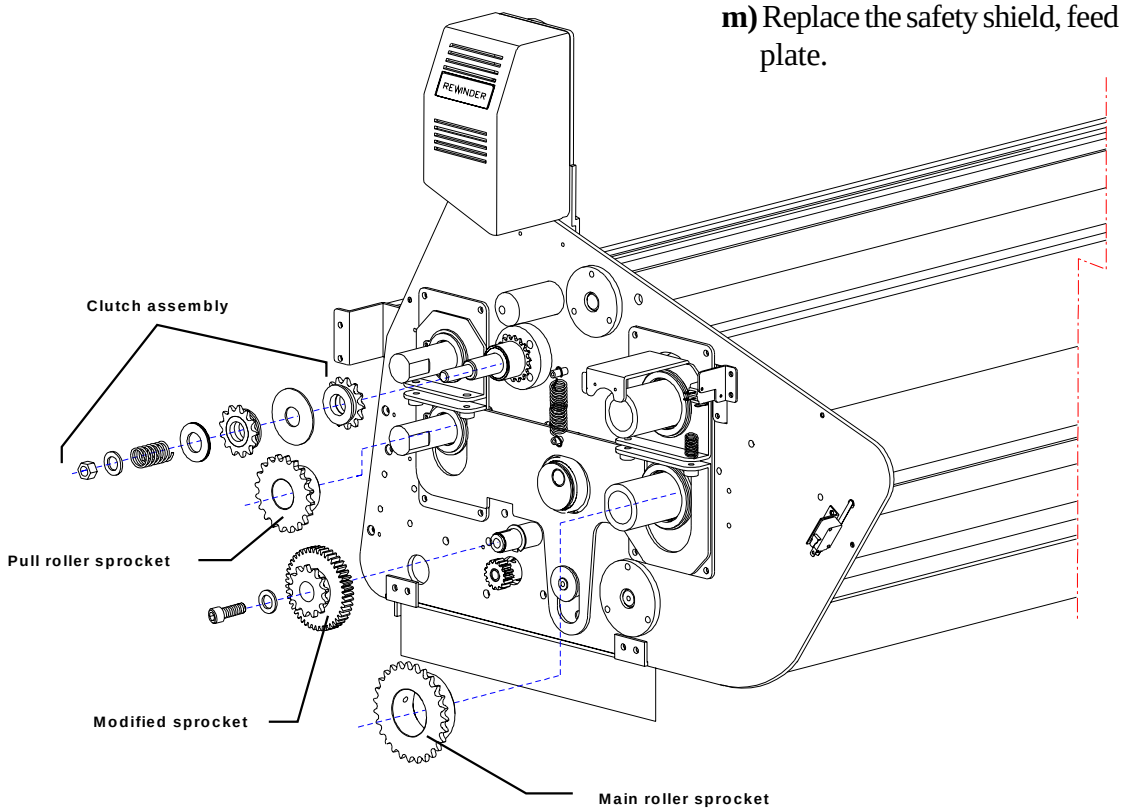
i) Measure the distance of the clutch sprockets from the side frame to properly align the related sprockets.

j) Replace the upper rollers as described in **Section 3.3.2**.

k) Replace the heaters as described in **Section 3.2.2**.

l) Replace the cabinets as described in **Section 3.1.2**.

m) Replace the safety shield, feed table and pressure plate.



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4.0 Flowcharts - Electrical

ELECTRICAL SHOCK

Only a qualified technician should electricaly troubleshoot the machine. You can be severely shocked, electrocuted or cause a fire if power is improperly applied.

Flowcharts are provided to assist you with troubleshooting the machine electronically. If the flowcharts are followed step by step, you should be able to determine the faulty component with reasonable accuracy.

In various places, you will find blank pages. These blank pages are placed so a reference schematic is not on the back side of a check step sheet. This allows you to use the reference schematics without interfering with the check step sheets.

Reference schematics are included as a guide. Each reference schematic corresponds with the a specific flowchart. The wires related to the flowchart are colored in black for your convenience. The grey lines are not related to the flowcharts.

Please refer to section 6.0 for full schematics. ***The Titan 165 and Titan 110 are identical electronically with the exception of one extra cooling fan on the Titan 165.***

Always consider the following safety warnings before continuing.

ELECTRICAL SHOCK

You can be severely shocked, electrocuted or cause a fire.

CAUTION

Always practice lock out/ tag out procedures when performing service related work.

CAUTION

Do not tug on the wire hard. You are only checking for wire tightness.

CAUTION

Changing parts should only be performed by qualified person(s).

CAUTION

Only the primary person (person performing the troubleshooting) may control the functions of the laminator during any troubleshooting procedure!

4.1 Machine will not power on

1) Check Incoming power to the laminator (230vac)

a. If voltage is not present at the input for the circuit breaker have an electrician check the building circuit.

b. If voltage is present go to step 2

2) Check the output form the circuit breaker

a. With the circuit breaker in the on position check for voltage (230vac). If there is no voltage or incorrect voltage replace circuit breaker.

b. If voltage is present go to step 3

3) Check the input voltage to the main PCB (230vac)

a. If there is no voltage present the connector labeled ACIN (con 4) check the wires and connections between the circuit breaker and the main PCB

b. If voltage is present then go to step 4

4) Check the output voltage from the board (230vac)

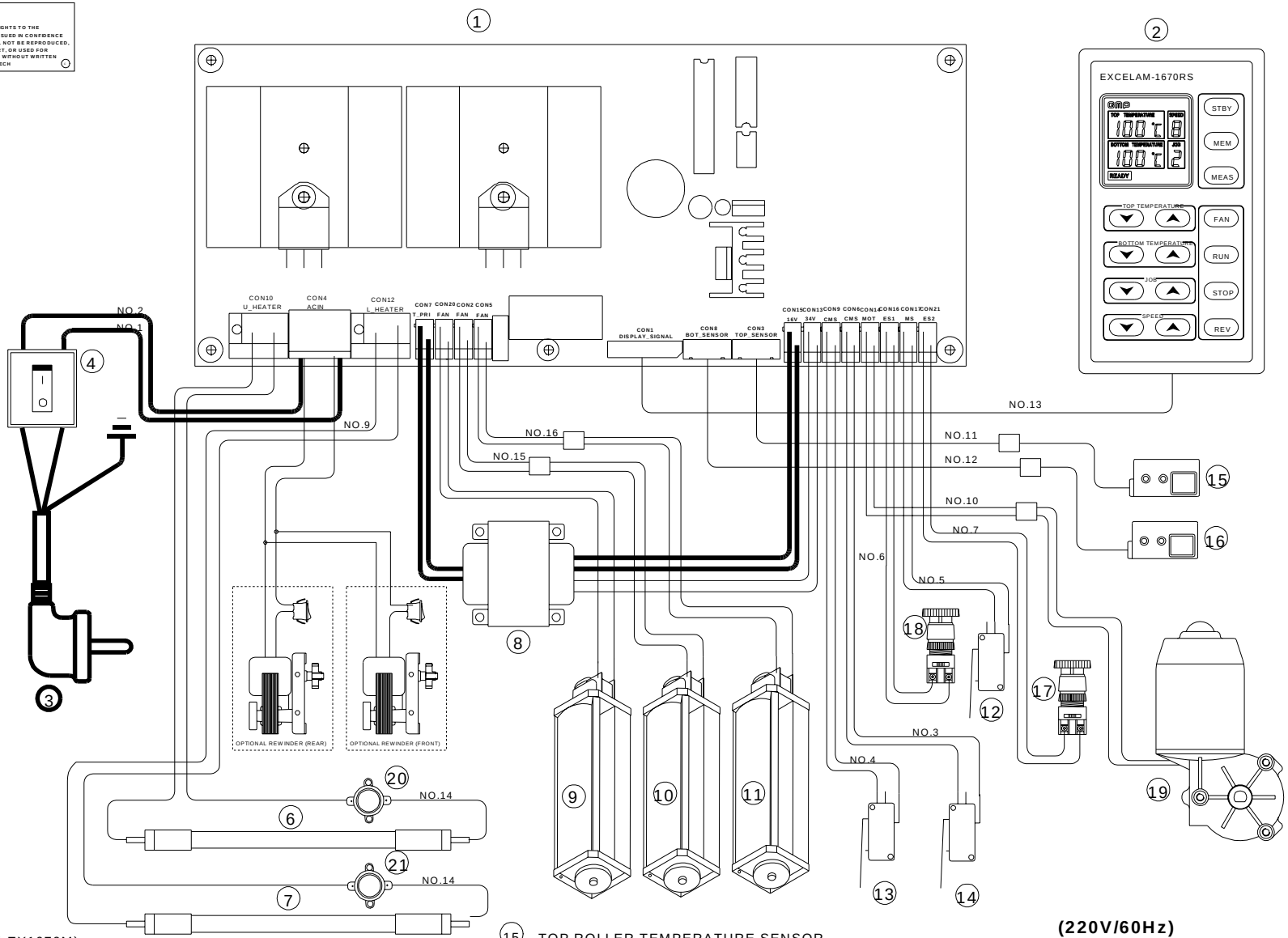
a. Disconnect the connector T_PR and check voltage at main PCB. If there is no voltage or incorrect voltage replace the main PCB.

b. If the correct voltage is present reconnect T_PR then go to step 5

5) Check the output from the transformer (16vac)

a. Disconnect the connector labeled 16v and check for voltage (16vac) on the connector. If 16vac in not present check the fuse located in the fuse block to the right of the main PCB. If the fuse is good then replace the transformer.

b. If the correct voltage is present then replace the main PCB.



(220V/60Hz)

1. MAIN PCB (4PK-EX1670M)
2. DISPLAY PCB (4PK-EX1670LDP)
3. ELECTRIC CORD (220V)
4. CIRCUIT BREAKER (MD2)
6. TOP HEATER
7. BOTTOM HEATER
8. POWER TRANSFORMER
9. AC COOLING FAN MOTOR 1
10. AC COOLING FAN MOTOR 2
11. AC COOLING FAN MOTOR 3
12. FRONT TABLE INTERLOCK
13. ROLLER COVER LEFT INTERLOCK
14. ROLLER COVER RIGHT INTERLOCK
15. TOP ROLLER TEMPERATURE SENSOR
16. BOTTOM ROLLER TEMPERATURE SENSOR
17. LEFT EMERGENCY S/W
18. RIGHT EMERGENCY S/W
19. MAIN MOTOR
20. TOP ROLLER THERMOSTAT
21. BOTTOM ROLLER THERMOSTAT

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REVISION

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UNLESS OTHERWISE SPECIFIED TOLERANCE

DIM. AS SHOWN	TOL.
XIX	+-1/64
X	+-.050
XX	+-.010
XXX	+-.020
XXXX	+-.005

FINISH TO BE 125 √

ANGLES +-1D

GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE :
Titan 165
Electrical Wire Diagram

DATE :	DRAWN BY :	DWG SCALE :	DWG :
03/30/99	N/A	N/A	T165 - EWD

4.2 No heaters

1. **Check the power to the heaters (230vac)**

   a. **Disconnect and test the voltage (230vac) at con 10 for the top heater and at con 12 for the bottom heater. If the correct voltage is not present replace the main PCB.**

   b. **If the correct voltage is present then go to step 2.**

2. **Check for proper destination of the wires to the heaters.**

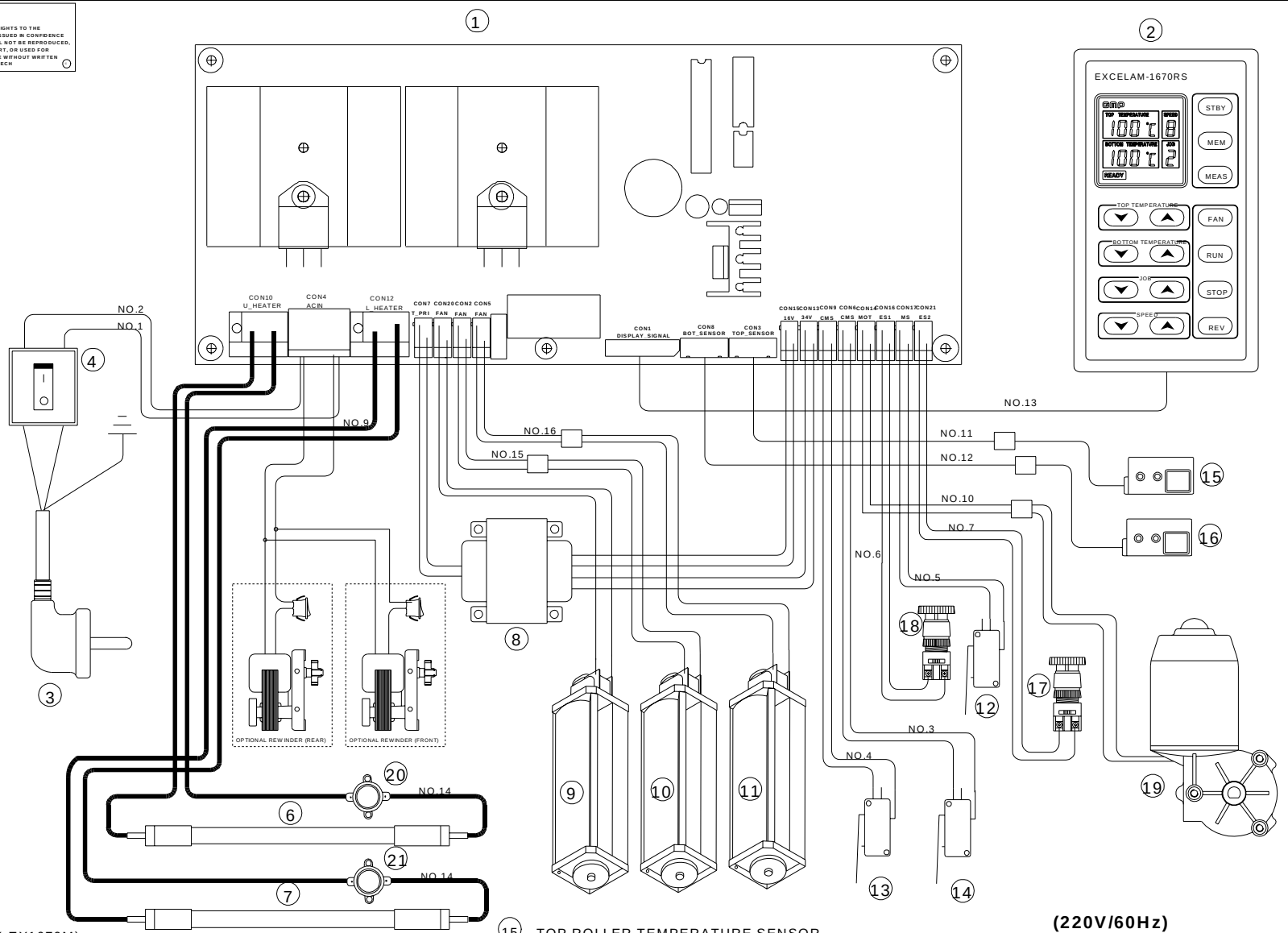
   a. **With the power off, check the wires to verify that the wires from CON10 go to the top heater, and that the wires from CON12 go to the bottom heater. If incorrect, wire them correctly.**

   b. **If correct, go to step 3.**

3. **Check the resistance of the heaters**

   a. **With the power off check the resistance of the heaters by removing the connector from the board and testing across the terminals in the plug for the proper resistance (29 ohms for the T-110 and 26 for the T-165). If an incorrect resistance reading is found, first check all the connection and if they are determined to be good then replace the heating element.**

   b. **If the resistance is found to be good replace the board.**



1. MAIN PCB (4PK-EX1670M)
2. DISPLAY PCB (4PK-EX1670LDP)
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11. AC COOLING FAN MOTOR 3
12. FRONT TABLE INTERLOCK
13. ROLLER COVER LEFT INTERLOCK
14. ROLLER COVER RIGHT INTERLOCK
15. TOP ROLLER TEMPERATURE SENSOR
16. BOTTOM ROLLER TEMPERATURE SENSOR
17. LEFT EMERGENCY S/W
18. RIGHT EMERGENCY S/W
19. MAIN MOTOR
20. TOP ROLLER THERMOSTAT
21. BOTTOM ROLLER THERMOSTAT

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UNLESS OTHERWISE SPECIFIED TOLERANCE

DIM. AS SHOWN	TOL.
X/X	+_1/64
X	+_.050
XX	+_.010
XXX	+_.020
XXXX	+_.005

FINISH TO BE 125 √

ANGLES +_1D

GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE :
Titan 165
Electrical Wire Diagram

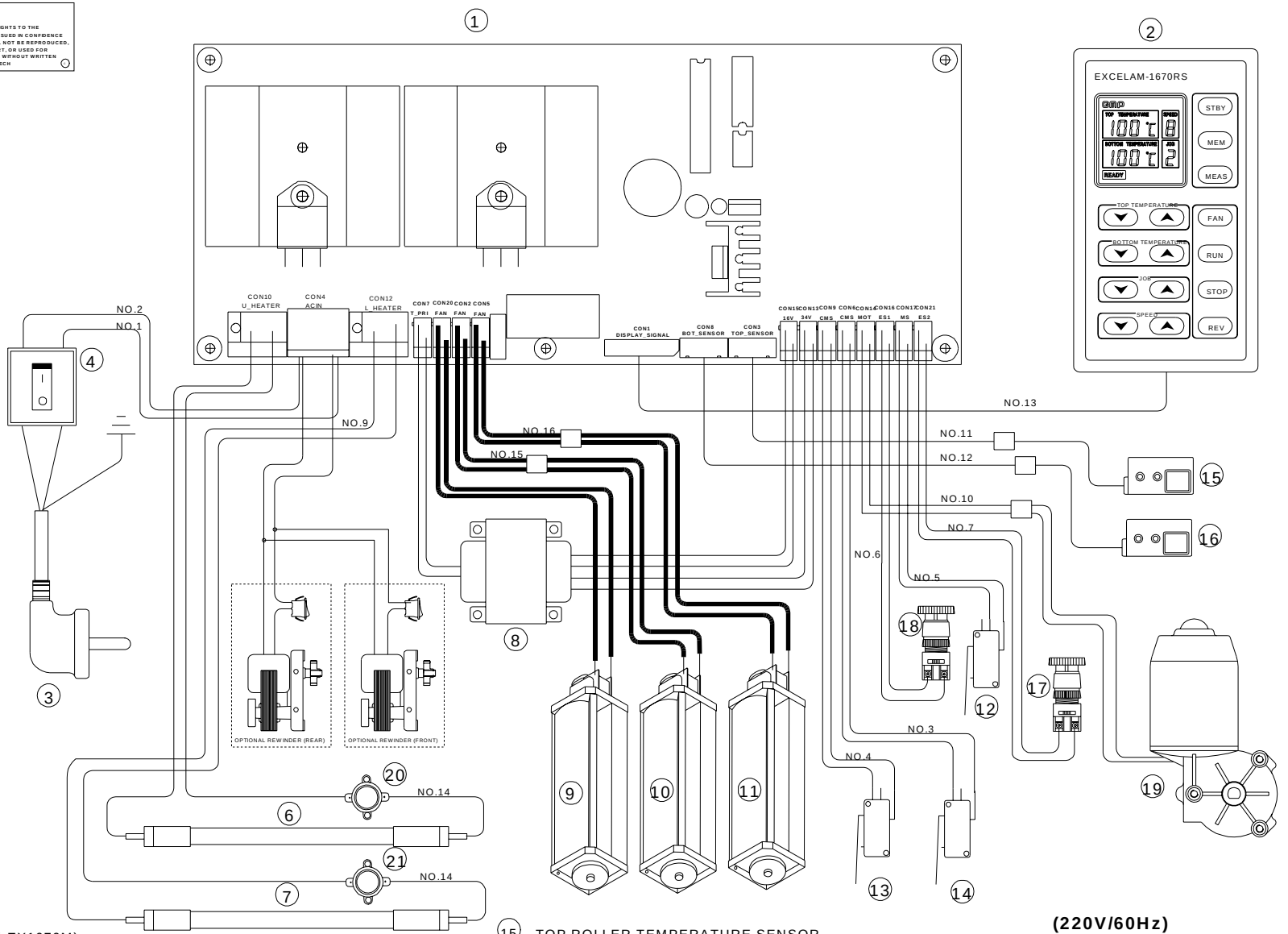
DATE :	DRAWN BY :	DWG SCALE :	DWG :
03/30/99	N/A	N/A	T165 - EWD

4.3 No cooling fans

1. **Check power to the fans(230vac)**

   a. **Disconnect and check the output from the main PCB board at the terminals labeled FAN (230vac). If voltage is not present then replace the main PCB board.**

   b. **If voltage is present then replace the fan.**



(220V/60Hz)

1. MAIN PCB (4PK-EX1670M)
2. DISPLAY PCB (4PK-EX1670LDP)
3. ELECTRIC CORD (220V)
4. CIRCUIT BREAKER (MD2)
6. TOP HEATER
7. BOTTOM HEATER
8. POWER TRANSFORMER
9. AC COOLING FAN MOTOR 1
10. AC COOLING FAN MOTOR 2
11. AC COOLING FAN MOTOR 3
12. FRONT TABLE INTERLOCK
13. ROLLER COVER LEFT INTERLOCK
14. ROLLER COVER RIGHT INTERLOCK
15. TOP ROLLER TEMPERATURE SENSOR
16. BOTTOM ROLLER TEMPERATURE SENSOR
17. LEFT EMERGENCY S/W
18. RIGHT EMERGENCY S/W
19. MAIN MOTOR
20. TOP ROLLER THERMOSTAT
21. BOTTOM ROLLER THERMOSTAT

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UNLESS OTHERWISE SPECIFIED TOLERANCE

DIM. AS SHOWN	TOL.
XIX	+-1/64
X	+-.050
XX	+-.010
XXX	+-.020
XXXX	+-.005

FINISH TO BE 125 √

ANGLES +-1D

GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE :
Titan 165
Electrical Wire Diagram

DATE :	DRAWN BY :	DWG SCALE :	DWG :
03/30/99	N/A	N/A	T165 - EWD

4.4 No motor

1. Check to see if the foot switch will activate the motor.

   a. If the foot switch functions then go to step 2

   b. If the foot switch does not work then go to step 3

2. Check the roller cover switches.

   a. Check the switches with the roll cover closed, the switches should be open. Disconnect and check the switches at the connectors labeled CMS on the main PCB board. Adjust or replace as necessary.

   b. If the switches are functioning properly, go to step 3.

3. Check the table switch

   a. Disconnect and check the table switch at the connector labeled MS on the main PCB board. With the table in place the circuit should be closed. If the switch is not closed check for proper activation of the switch. Adjust or replace as necessary.

   b. If the switch is functioning properly, test for 26vac at connector MS on the main PCB to ground. If voltage is not present then go to step5.

   c. If the table switch is functioning properly then go to step 4

4. Check the emergency stop buttons.

   a. Disconnect and check the connectors labeled ES1 and ES2 for continuity on the emergency stop buttons. If you don't have continuity check the wire connections. If the connections are good then replace the emergency stop buttons.

   b. If you have continuity, check for 26vac on the connectors at the main PCB to ground. If voltage is not present then go to step 5.

5. Check the power transformer.

a. Disconnect and check for 34vac at the connector labeled 34vac on the main PCB board. If 34vac is not present then check the fuse located to the right of the main PCB. If the fuse is good replace the transformer.

b. If 34vac is preset, then go to step 6.

6. Check power to the motor.

a. Disconnect and check the output voltage at the connector labeled MOT on the main PCB board. The voltage should vary from 7vdc at speed 1 to 36 vdc at speed 9. If voltage is not present or incorrect then replace the board.

b. If the correct voltage is present then replace the motor.

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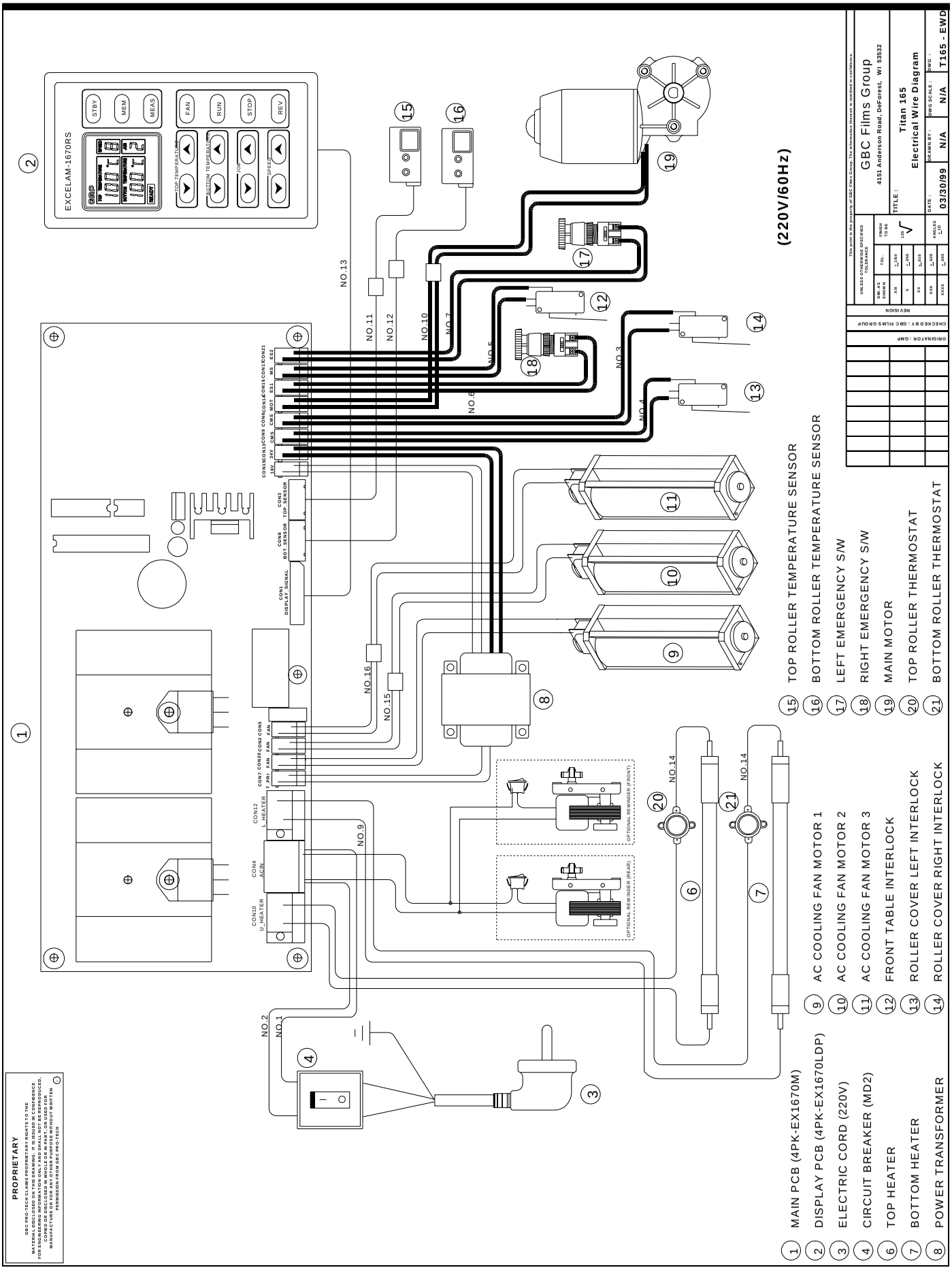
EXCELAM-1670RS
STBY
MEM
MEAS
FAN
RUN
STOP
REV
TOP TEMPERATURE
BOTTOM TEMPERATURE
SPEED
(220V/60Hz)
NO.1
NO.2
NO.3
NO.4
NO.5
NO.6
NO.7
NO.9
NO.10
NO.11
NO.12
NO.13
NO.14
NO.15
NO.16
CON1 DISPLAY SIGNAL
CON3 TOP SENSOR
CON8 BOT SENSOR
CON4 AC IN
CON12 L.HEATER
CON10 U.HEATER
OPTIONAL REMINDER (FRONT)
OPTIONAL REMINDER (REAR)
1 MAIN PCB (4PK-EX1670M)
2 DISPLAY PCB (4PK-EX1670LDP)
3 ELECTRIC CORD (220V)
4 CIRCUIT BREAKER (MD2)
6 TOP HEATER
7 BOTTOM HEATER
8 POWER TRANSFORMER
9 AC COOLING FAN MOTOR 1
10 AC COOLING FAN MOTOR 2
11 AC COOLING FAN MOTOR 3
12 FRONT TABLE INTERLOCK
13 ROLLER COVER LEFT INTERLOCK
14 ROLLER COVER RIGHT INTERLOCK
15 TOP ROLLER TEMPERATURE SENSOR
16 BOTTOM ROLLER TEMPERATURE SENSOR
17 LEFT EMERGENCY S/W
18 RIGHT EMERGENCY S/W
19 MAIN MOTOR
20 TOP ROLLER THERMOSTAT
21 BOTTOM ROLLER THERMOSTAT
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TITLE:
Titan 165
Electrical Wire Diagram
DATE: 03/30/99
DRAWN BY: N/A
DWG SCALE: N/A
DWG: T165 - EWD

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5.0 Flowcharts - Mechanical

CAUTION

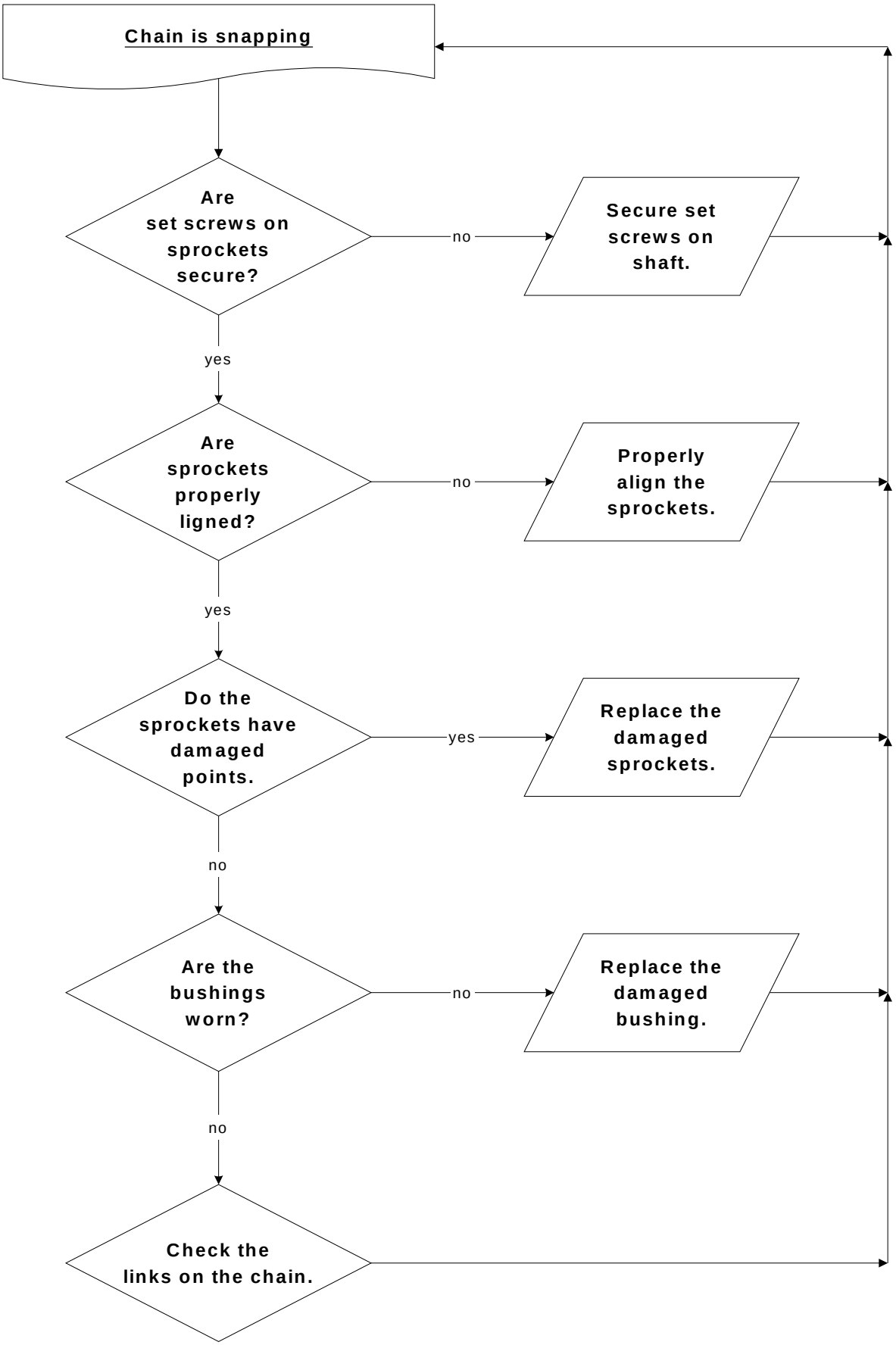
Always practice lock out/ tag out procedures when performing service related work.

Mechanical troubleshooting consist of checking bushings, chains, sprockets and idlers. The flowcharts provided are for basic mechanical troublshooting.

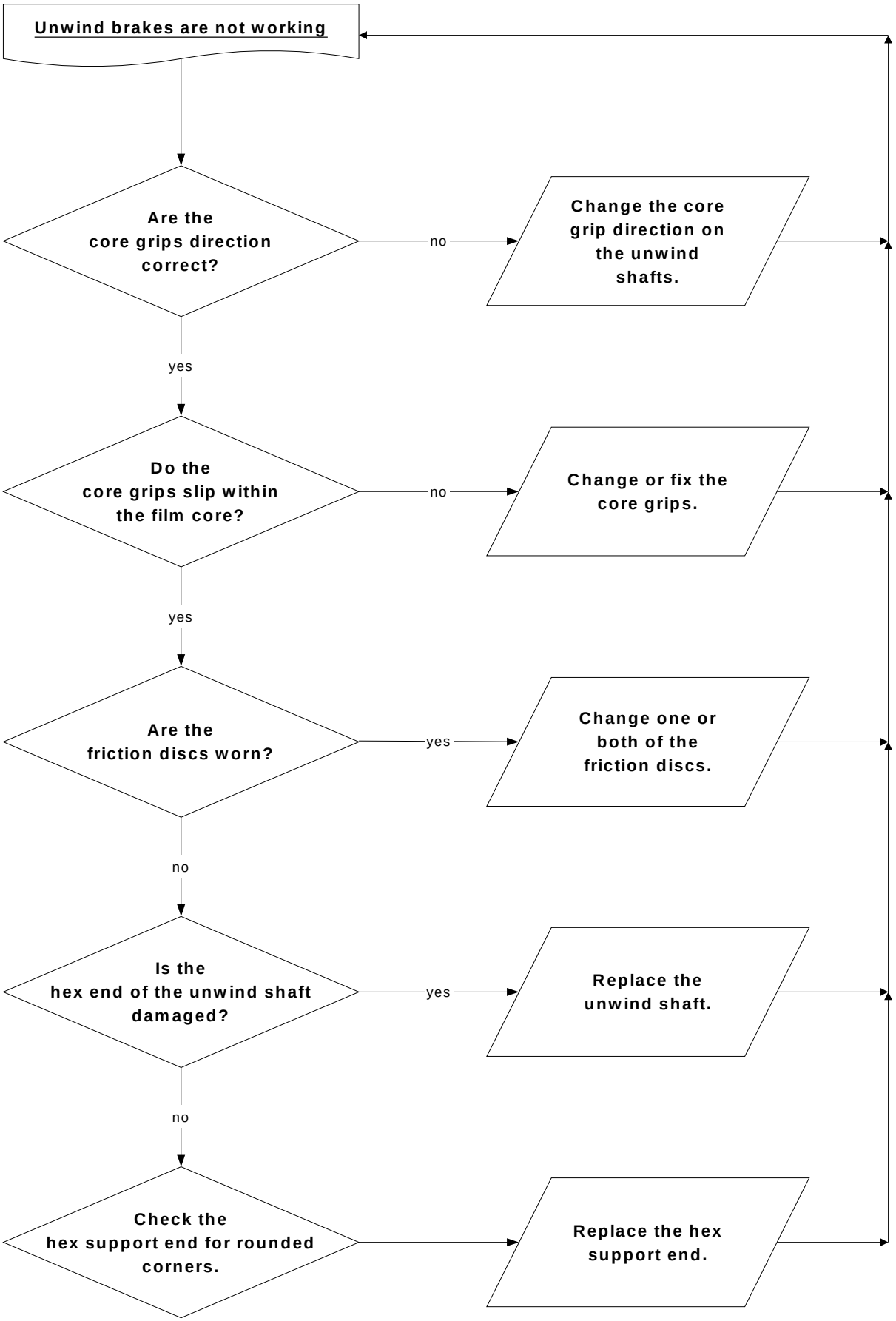
CAUTION

Only the primary person (person performing the troubleshooting) may control the functions of the laminator during any troubleshooting procedure!

5.1 Chain is snapping



5.2 Unwind brakes are not working.



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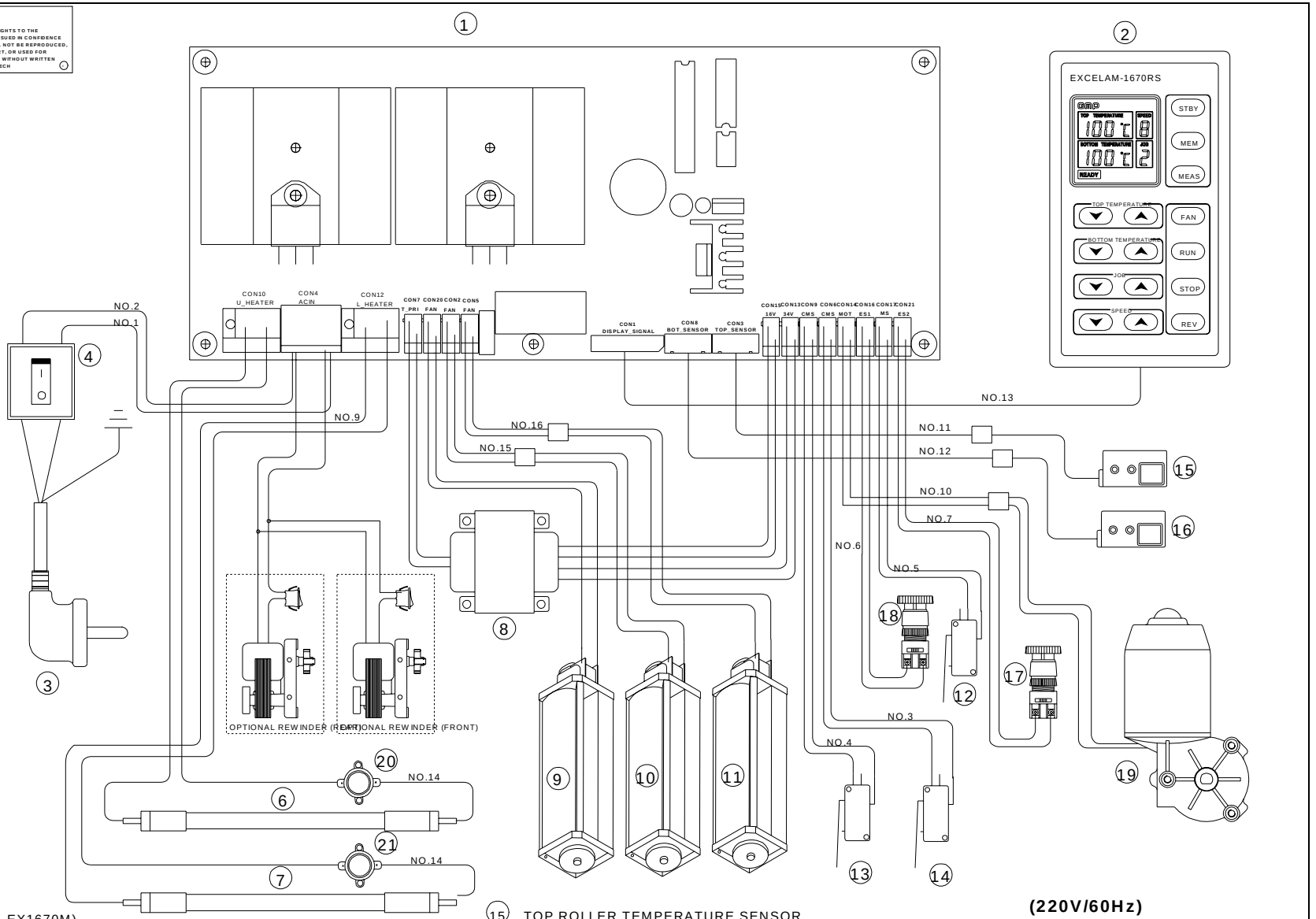
6.0 Schematics

In this section you will find the electrical schematic for the Titan 165 and the Titan 110. The only difference between the two schematics is that the Titan 165 is equipped with three fans and the Titan 110 only has two.

ELECTRICAL SHOCK

Only a qualified technician should electricaly troubleshoot the machine. You can be severely shocked, electrocuted or cause a fire if power is improperly applied.



1. MAIN PCB (4PK-EX1670M)
2. DISPLAY PCB (4PK-EX1670LDP)
3. ELECTRIC CORD (220V)
4. CIRCUIT BREAKER (MD2)
6. TOP HEATER
7. BOTTOM HEATER
8. POWER TRANSFORMER
9. AC COOLING FAN MOTOR 1
10. AC COOLING FAN MOTOR 2
11. AC COOLING FAN MOTOR 3
12. FRONT TABLE INTERLOCK
13. ROLLER COVER LEFT INTERLOCK
14. ROLLER COVER RIGHT INTERLOCK
15. TOP ROLLER TEMPERATURE SENSOR
16. BOTTOM ROLLER TEMPERATURE SENSOR
17. LEFT EMERGENCY S/W
18. RIGHT EMERGENCY S/W
19. MAIN MOTOR
20. TOP ROLLER THERMOSTAT
21. BOTTOM ROLLER THERMOSTAT

ORIGINATOR : ISMP
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UNLESS OTHERWISE SPECIFIED TOLERANCE

DIM. AS SHOWN	TOL.
X/K	±.1/64
X	±.050
XX	±.010
XXX	±.020
XXXX	±.005

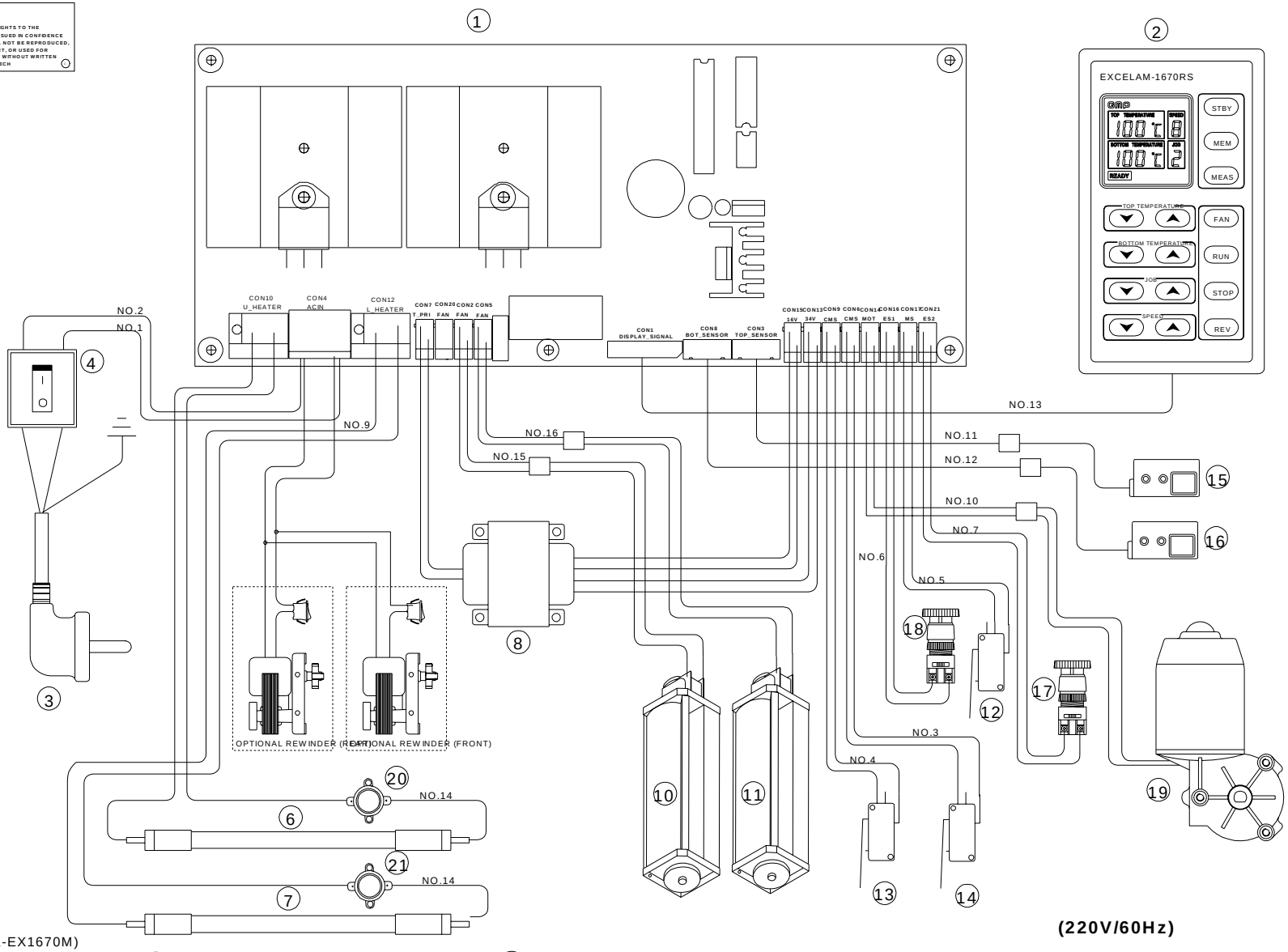
FINISH TO BE 125 √

ANGLES ±.1D

GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE : Titan 165
Electrical Wire Diagram

DATE :	DRAWN BY :	DWG SCALE :	DWG :
03/30/99	N/A	N/A	T165 - EWD



(220V/60Hz)

1. MAIN PCB (4PK-EX1670M)
2. DISPLAY PCB (4PK-EX1670LDP)
3. ELECTRIC CORD (220V)
4. CIRCUIT BREAKER (MD2)
6. TOP HEATER
7. BOTTOM HEATER
8. POWER TRANSFORMER
10. AC COOLING FAN MOTOR 2
11. AC COOLING FAN MOTOR 3
12. FRONT TABLE INTERLOCK
13. ROLLER COVER LEFT INTERLOCK
14. ROLLER COVER RIGHT INTERLOCK
15. TOP ROLLER TEMPERATURE SENSOR
16. BOTTOM ROLLER TEMPERATURE SENSOR
17. LEFT EMERGENCY S/W
18. RIGHT EMERGENCY S/W
19. MAIN MOTOR
20. TOP ROLLER THERMOSTAT
21. BOTTOM ROLLER THERMOSTAT

ORIGINATOR: GMP
CHECKED BY: GBC FILMS GROUP
REVISION

UNLESS OTHERWISE SPECIFIED TOLERANCE

DIM. AS SHOWN	TOL.
XIX	+-1/64
X	+-.050
XX	+-.010
XXX	+-.020
XXXX	+-.005

FINISH TO BE 125 √

ANGLES +-1D

GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE : Titan 110 Electrical Wire Diagram

DATE :	DRAWN BY :	DWG SCALE :	DWG :
03/30/99	N/A	N/A	T110 - EWD

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7.0 Spare Parts

This is a recommended spare parts list and can be modified as required. The quantity is based on one machine. Consult your service manager if you require spare parts for more than one machine.

7.1 Item list

Part #	Description	Qty
604020321	Cabinet, left	1
604020322	Cabinet, right	1
706025050	Infrared heater (US) - 165	2
706025048	Infrared heater (Euro) - 165	2
7060250431	Infrared heater - 110	2
607040518	Rollers, main - 165	2
607040523	Rollers, main - 110	2
607040519	Rollers, pull - 165	2
607040524	Rollers, pull - 110	2
706011156	PCB assembly, 41670RS display	1
703020216	1670RS control panel	1
802105015	Switch panel sticker / Titan	1
706011151	PCB assembly, 1670RS main	1
610011903	Transformer GM7660EX-234	2
6090205	DC geared motor DM012	1

Part #	Description	Qty
704031124	Power cord (US)	1
704030416	Power cord (Euro)	1
704090603	Footswitch	1
701130507	Casters	2
704090252	Emergency switch	2
613030613	Feed table latch	2
701110203	Plate washer	4
601230814	Lever guide	2
701090160	Safety lever spring	2
604037026	AL3 core bushing	2
613030527	Core bushing bolt	2
8050112	57mm core bushing	2
704090411	Micro switch	2
701090163	Pulling spring	2
604022033	Slitter housing	1
604022034	Slitter lever	1
613050221	Slitter blade	1
604020323	Knob, tension	1
703021051	Knob, eccentric lever handle	1
613010113	Eccentric lever	1

Part #	Description	Qty
604022032	Paper guide knob, 2700	2
613030622	Roller cover safety lever	1
613030614	Lever cap	1
703040211	Teflon bushing	2

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8.0 Illustrated Parts

This section contains parts illustrations for both the Titan 165 and Titan 110 machines. Section 8.1 contains illustrations for the Titan 165 and section 8.2 contains illustrations for the Titan 110.

For parts not illustrated, please call your regional service manager or National Service Parts for assitance at **1- 800 - 790 - 7787**.

Items not illustrated ;

Operations Manual: 930 - 046
(Titan 165 and Titan 110)

***** Most of the part numbers are the same for both machines with thew exception of parts related to the width of the machine.

8.1 Titan 165 parts illustrations

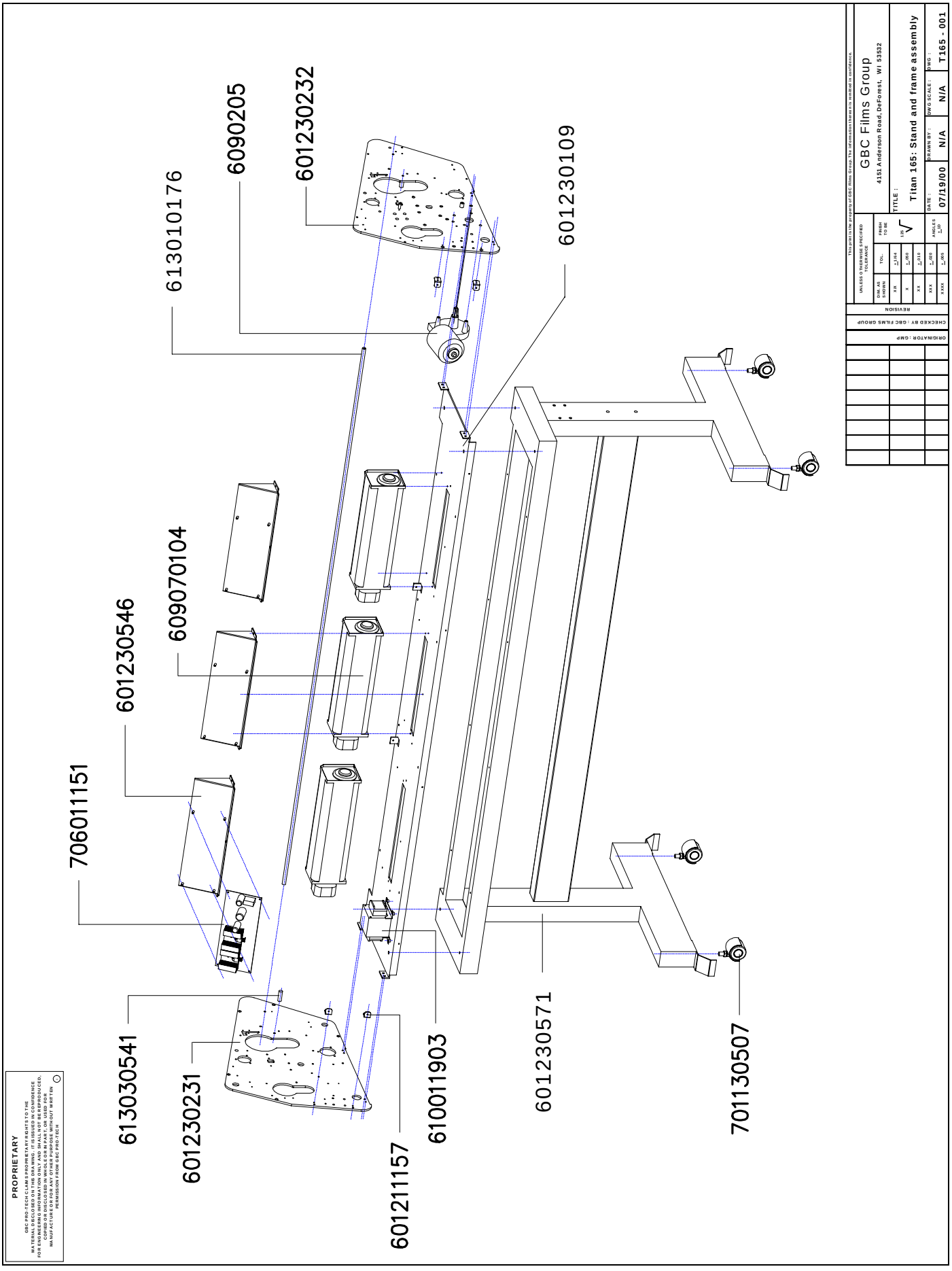
PART #	DESCRIPTION	Quanity
6090205	DC GEARED MOTOR(DM012)	1
8050112	57MM	2
601211157	SURE BACK COVER SUPPORT	4
601230109	1670RS BOTTOM PLATE	1
601230231	1670RS SIDE PLATE(L)	1
601230232	1670RS SIDE PLATE(R)	1
601230411	1670RS FRONT COVER	1
601230412	1670RS REAR COVER	1
601230413	1670RS REAR TABLE	1
601230415	1670RS PAPER TABLE PLATE	1
601230416	1670RS FAN COVER	1
601230417	1670RS PC COVER CAP	1
601230458	1670RS PC ROLLER COVER	1
601230541	1670RS HEATER SUPPORT	2
601230542	1670RS H/ROLLER HOOK	2
601230543	1670RS P/ROLLER HOOK	2
601230544	1670RS H/ROLLER SUPPORT	2
601230545	1670RS P/ROLLER SUPPORT	2
601230546	1670RS PCB SUPPORT	3
601230547	1670RS AIR SCREEN	1
601230548	1670RS FAN NET	4
601230549	1670RS TENSION PLATE(L)	1
601230550	1670RS TENSION PLATE(R)	1
601230551	1670RS SENSOR SUPPORT	1
601230552	1670RS SENSOR BRACKET	1
601230553	1670RS PC COVER BRACKET(L)	1
601230554	1670RS PC COVER BRACKET(R)	1
601230555	LIMITS SWITCH BRACKET(L)	1
601230556	LIMITS SWITCH BRACKET(R)	1
601230557	MAGNETIC BRACKET(L)	1
601230558	MAGNETIC BRACKET(R)	1
601230561	1670RS REWINDER SUPPORT(L)	1
601230562	1670RS REWINDER SUPPORT(R)	1
601230571	1670RS STAND	1
601230581	1670RS SIDE DOOR(L)	1
601230582	1670RS SIDE DOOR(R)	1
601230591	1670RS CASE(L)	1
601230592	1670RS CASE(R)	1
601230702	EAGLE INSIDE TENSION PLATE	1
601230708	EAGLE TENSION BLOCK STOPPER	2

PART #	DESCRIPTION	Quanity
601230711	SURELAM OUTER TENSION DISC	2
601230712	COLD OUTSIDE TENSION DISK	1
601230814	EAGLE LEVER FIXED PANEL	3
601230834	EAGLE SPRING CAP	3
601230873	COLD BLADE RAIL BRACKET(L)	1
601230874	COLD BLADE RAIL BRACKET(R)	1
601230883	1670RS BLADE RAIL	1
601310508	MICRO S/W SUPPORT	1
604020311	EAGLE REWINDER COVER(L)	1
604020312	EAGLE REWINDER COVER(R)	1
604022031	PAPER GUIDE	2
604022032	PAPER GUIDE KNOB	4
604022033	SLITTER HOUSING	1
604022034	SLITTING LEVER	1
604036009	1670RS FRONT TABLE	1
604037022	AL 2"CORE BUSHING	4
604037026	AL 3"CORE BUSHING	4
604037033	3"BLACK CORE BUSHING	2
604620101	METAL MAGNET	2
607040518	EXCELAM1670 RS H/ROLLER	2
607040519	EXCELAM1670 RS P/ROLLER	2
609010116	AC GEARED ISG3215	
609070104	CROSS FAN MOTOR	3
610011903	TRANSFORMER GM7660EX-234	1
613010113	SURE ECCENTRIC LEVER	1
613010171	1670RS IDLE ROLLER(UP)	1
613010172	1670RS IDLE ROLLER(LOW)	1
613010176	1670RS TIE BAR	1
613011005	ECCENTRIC LEVER CAP	1
613030219	1670RS HEX FILM SHAFT(PL	3
613030301	EAGLE FILM SHAFT BUSHING	3
613030409	1670RS ECCENTRIC SHAFT(PL)	1
613030527	EAGLE FIXED BOLT	4
613030533	TENSION CONTROL KNOB	2
613030541	GBC4265 FRONT TABLE SUPPORT PIN	2
613030552	REWINDER TENSION BOLT	1
613030575	1670RS BEARING HOUSING(UP)	2
613030576	1670RS BEARING HOUSING(LOW)	2
613030577	1670RS P/ROLLER BUSH(UP)	2
613030578	1670RS P/ROLLER BUSH(LOW)	2

PART #	DESCRIPTION	Quanity
613030579	1670RS H/ROLLER BUSH(UP)	2
613030580	1670RS H/ROLLER BUSH(LOW)	2
613030587	1670RS FILM TENSION BLOCK	2
613030597	TENSION BOLT(PL)	2
613030621	LEVER (UP)	3
613030622	LEVER (DOWN)	1
613030631	1670RS GUIDE BUSH PIN	
613030632	1670RS GUIDE BUSH	2
613030633	1670RS REWINDER GEAR PIN	1
613030634	1670RS DOUBLE GEAR PIN	1
613030635	1670RS CLUCH SHAFT	2
613030636	1670RS ECCENTRIC CAM	2
613030637	1670RS REWINDER TAKE UP BOSS	1
613050221	FILM CUTTER(ROLL)(PL	1
701010103	BALL BEARING	4
701010141	BALL BEARING	4
701020203	THRUST NIDDLE ROLL BEARING	2
701020205	THRUST NIDDLE ROLL BEARING	2
701020222	NIDDLE ROLL BEARING	2
701050181	DU BEARING TUBE	1
701050183	DU BEARING TUBE	4
701050245	DU BEARING FRANGE	1
701050247	DU BEARING FRANGE	1
701050259	DU BEARING FRANGE	4
701050276	DU BEARING FRANGE	4
701070143	ROLLER CHAIN	1
701070212	ROLLER CHAIN	1
701070216	ROLLER CHAIN	1
701080118	STEEL SPUR GEAR	1
701080125	STEEL SPUR GEAR	1
701080224	STEEL 1/4CHAIN GEAR	1
701080310	STEEL SPUR+CHIAIN GEAR	1
701080315	STEEL SPUR+CHAIN GEAR(RS35H)	1
701080521	STEEL CHAIN GEAR(RS#35)	2
701080526	STEEL CHAIN GEAR(RS#35)	1
701080527	STEEL CHAIN GEAR(RS#35)	1
701090116	ROLLER SPRING	8
701090142	EAGLE FILM PIPE SPRING	3
701090163	PULLING SPRING	2
701090832	SPRING PIN	1

PART #	DESCRIPTION	Quanity
701130507	CASTER	4
703020216	1670RS CONTROL PANEL	1
703020511	PC CONTROL KEY	1
703020512	PC CONTROL KEY	1
703020513	PC CONTROL KEY	1
703020514	PC CONTROL KEY	1
703020515	PC CONTROL KEY	1
703020516	PC CONTROL KEY	1
703020517	PC CONTROL KEY	1
703020518	PC CONTROL KEY	8
703021051	ECCENTRIC LEVER KNOB	1
703021061	1670RS PLASTIC TENSION BLOCK	1
703040211	TEFLON BUSHING	4
703070101	EAGLE/ULTIMA	1
703070106	CLUTCH	1
703070112	HR2 INSIDE TENSION DISK	2
703070113	U? STOPPER	1
703070114	GMP-HR2	4
704031124	INLET 250V(USA)	1
704090141	POWER SWITCH	1
704090252	EMERGENCY SWITCH	2
704090411	MICRO SWITCH (EAGLE)	2
704140411	CORD STOPPER	1
704150104	BI-METAL THERMOSTAT	2
705081036	PCB/1670RS DISPLAY	1
705200201	INFRARED SENSOR	2
706011151	PCB ASS'Y 1670RS MAIN	1
706025050	GBC-TITAN INFRARED HEATER ASS'Y	2
802025306	NAME STICKER/1670RS	1
802105015	SWITCH PANEL STICKER/TITAN	1
803040313	REWINDER STICKER	1
803040343	EMERGENCY STICKER(SURELAM)	2
804020407	PAPER PIPE	1
706011156	PCB ASS'Y1670RS DISPLAY	1
803040315	ROLLER TENSION STICKER	
803040321	WARNING STICKER (HOT)	
803040322	WARNING STICKER (ELECTRIC)	
803040323	WARNING STICKER (SHOCK HAZARD)	
803040325	WARNING STICKER (SHARP BLADE)	
803040326	WARNING STICKER (PULL ROLLER)	

PART #	DESCRIPTION	Quanity
803040356	EAGLE PRESSURE STICKER (L)	
803040357	EAGLE PRESSURE STICKER (U)	
706025043	HEATER T-110	2
607040523	HEAT ROLLER T-110	2
607040524	PULL ROLLER T-110	2
604036014	FEED TABLE T-110	1
601230456	SAFEETY SHIELD T-110	1
601230576	PRINT CLAMP T-110	1


613010176
6090205
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601230109
609070104
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706011151
613030541
601230231
601211157
610011903
601230571
701130507
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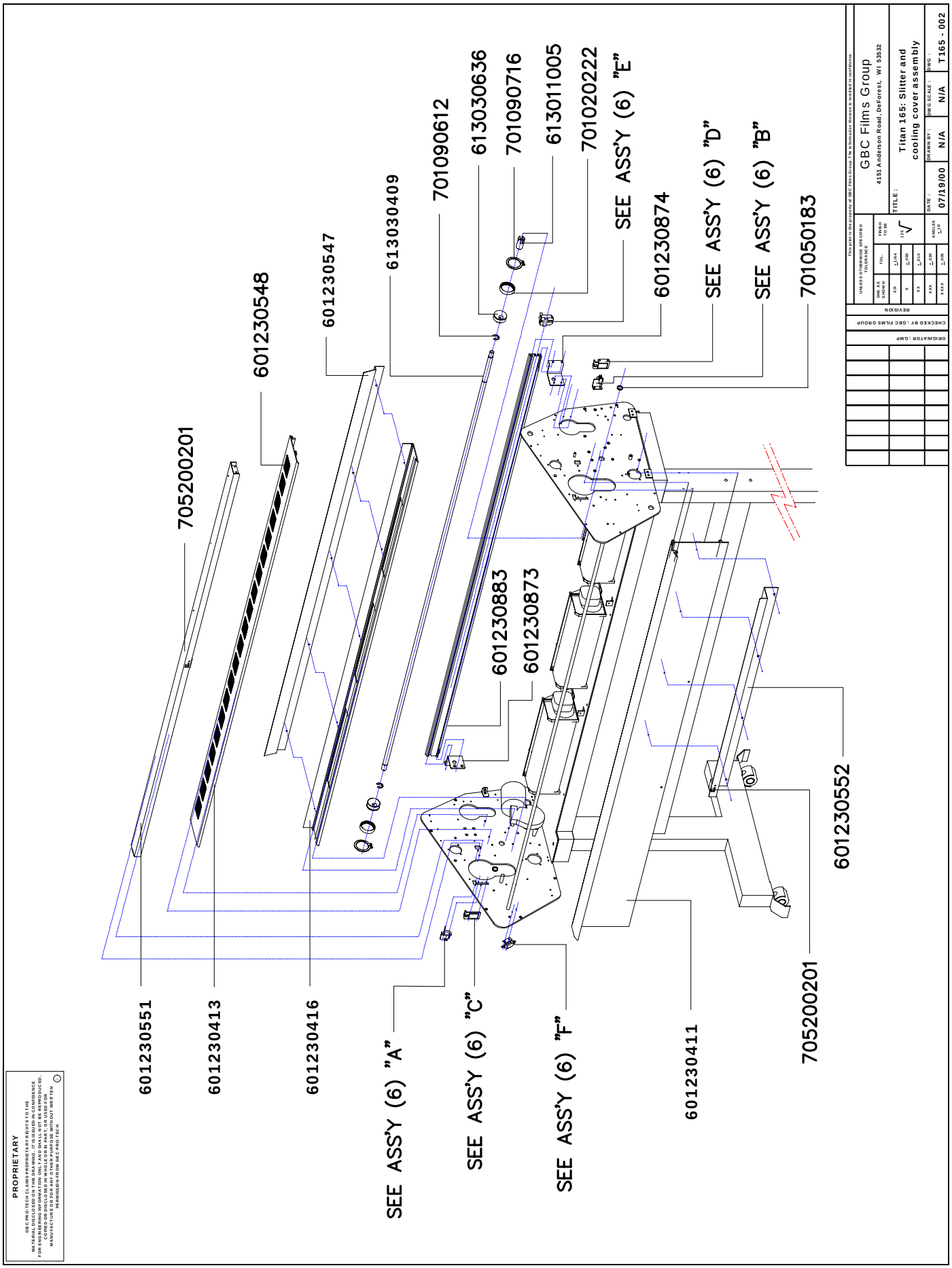
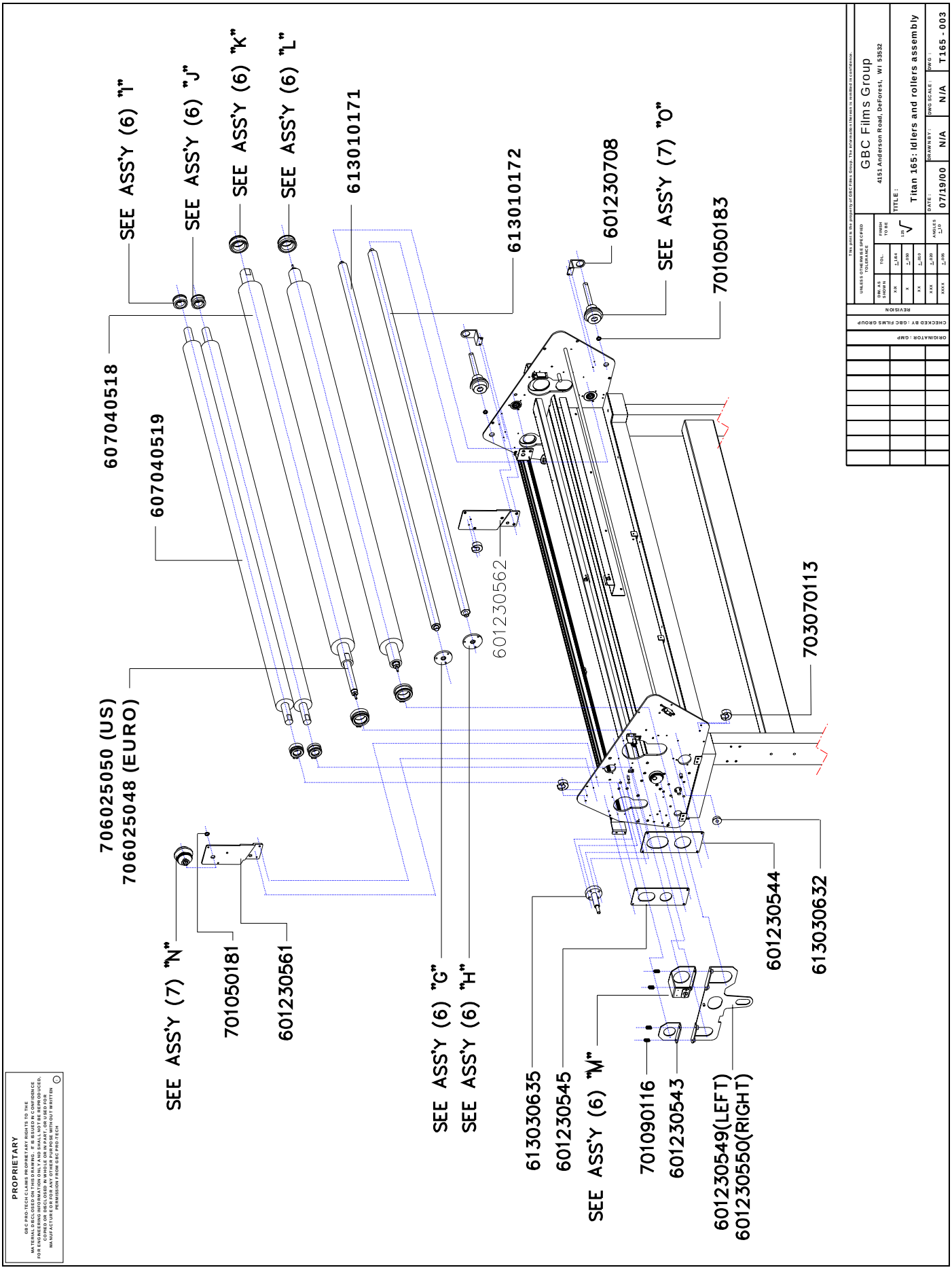
UNLESS OTHERWISE SPECIFIED TOLERANCE
DIM. AS SHOWN
TOL.
FINISH TO BE
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 165: Stand and frame assembly
DATE :
07/19/00
DRAWN BY :
N/A
DWG SCALE :
N/A
DWG :
T165 - 001
ORIGINATOR : CMP
CHECKED BY : GBC FILMS GROUP
REVISION




SEE ASS'Y (6) "I"
SEE ASS'Y (6) "J"
SEE ASS'Y (6) "K"
SEE ASS'Y (6) "L"
607040518
607040519
706025050 (US)
706025048 (EURO)
613010171
613010172
601230708
SEE ASS'Y (7) "O"
701050183
703070113
601230562
SEE ASS'Y (7) "N"
701050181
601230561
SEE ASS'Y (6) "G"
SEE ASS'Y (6) "H"
613030635
601230545
SEE ASS'Y (6) "M"
701090116
601230543
601230549(LEFT)
601230550(RIGHT)
601230544
613030632
PROPRIETARY
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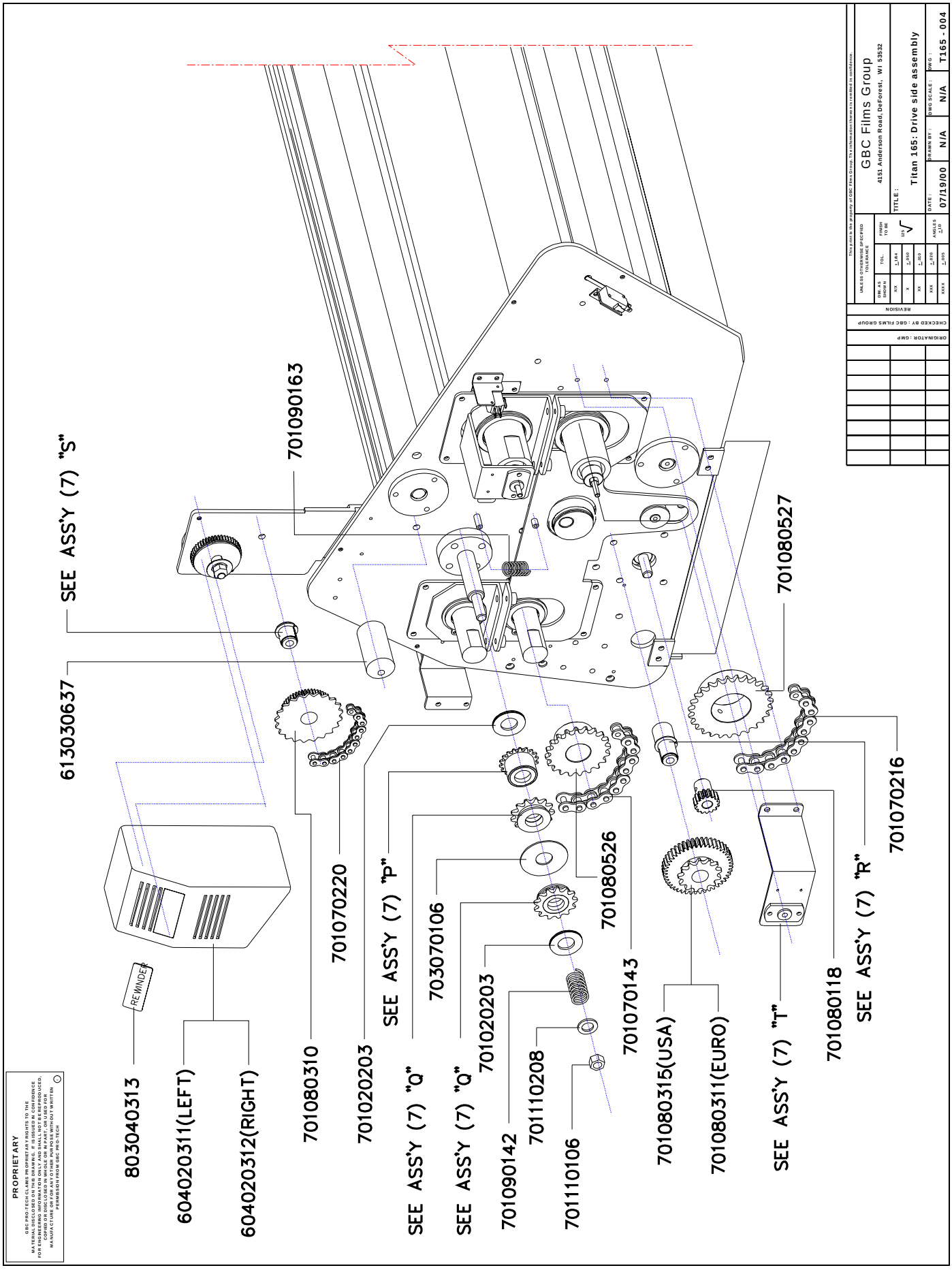
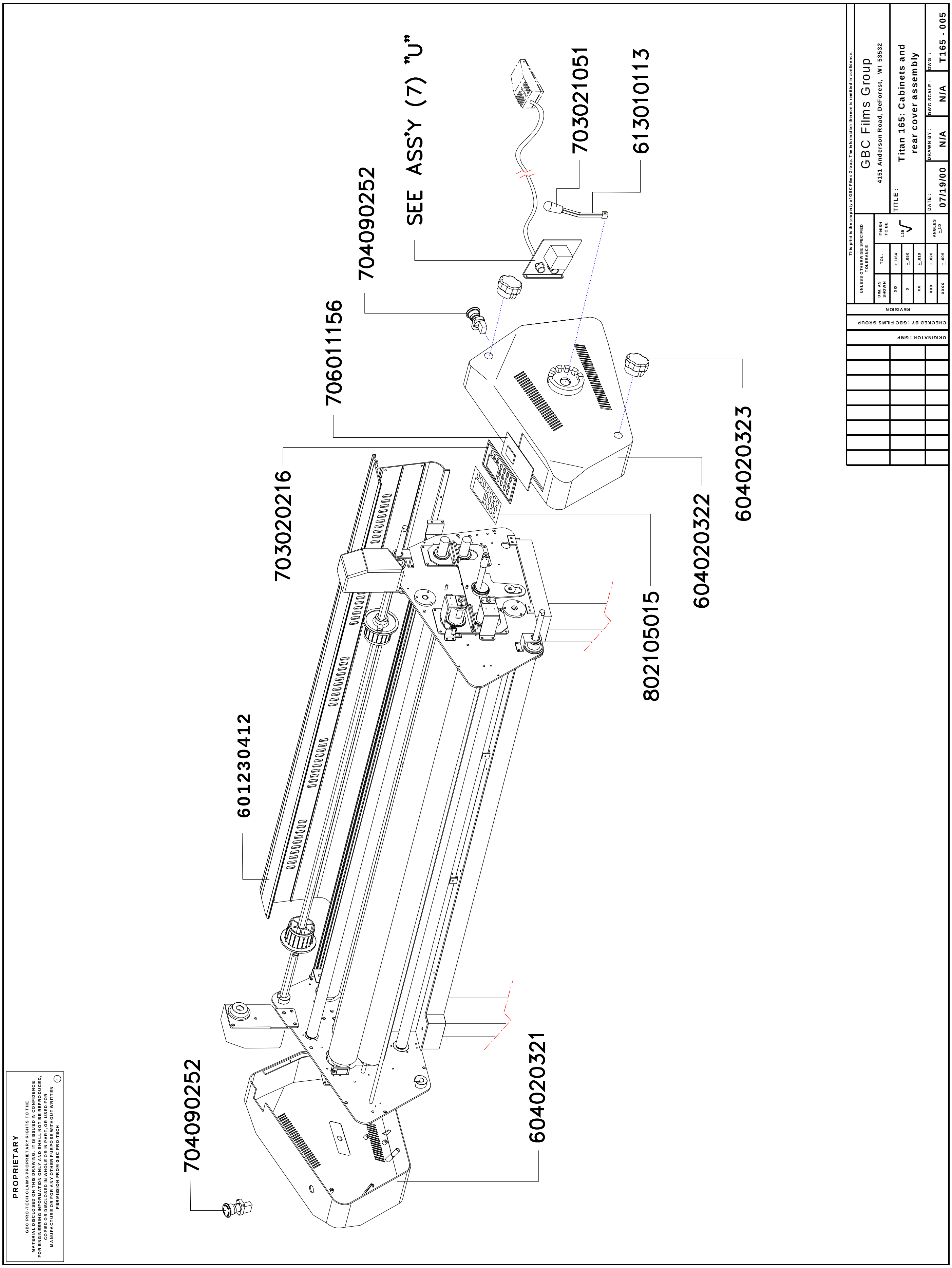
CHECKED BY : GBC FILMS GROUP
REVISION
UNLESS OTHERWISE SPECIFIED TOLERANCE
DIM. AS SHOWN
TOL.
FINISH TO BE
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 165: Idlers and rollers assembly
DATE :
07/19/00
DRAWN BY :
N/A
DWG.SCALE :
N/A
DWG :
T165 - 003




704090252
SEE ASS'Y (7) "U"
7030210S1
613010113
706011156
703020216
604020323
604020322
802105015
601230412
704090252
604020321
This print is the property of GBC Films Group. The information thereon is remitted in confidence.
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 165: Cabinets and rear cover assembly
DATE :
07/19/00
DRAWN BY :
N/A
DWG SCALE :
N/A
DWG :
T165 - 005
UNLESS OTHERWISE SPECIFIED TOLERANCE
DIM. AS SHOWN
TOL.
X/X
± 1/64
X
± .050
XX
± .010
XXX
± .020
XXXX
± .005
FINISH TO BE
125
ANGLES
± 1D
REVISION
CHECKED BY : GBC FILMS GROUP
ORIGINATOR : GMP
PROPRIETARY
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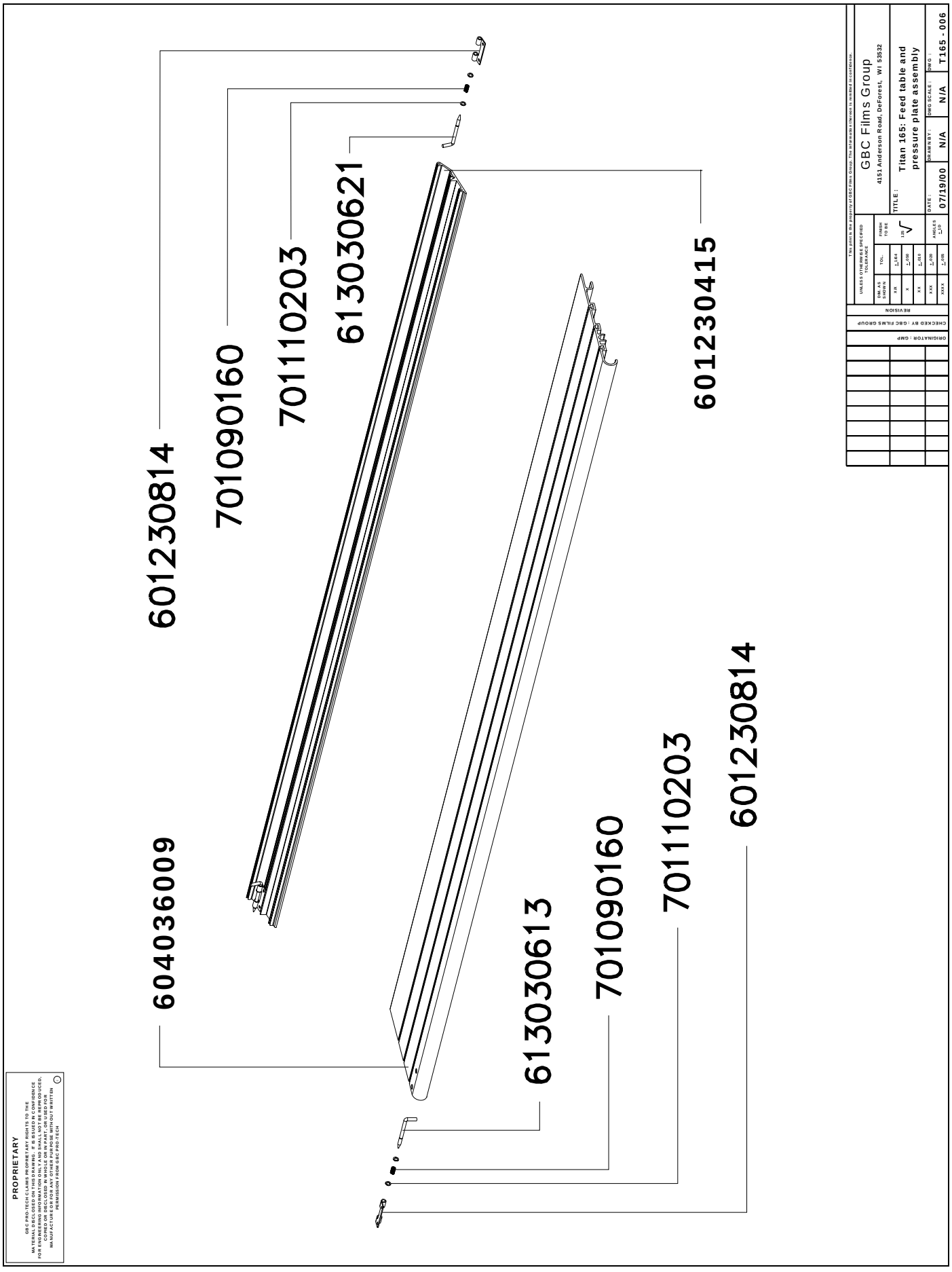

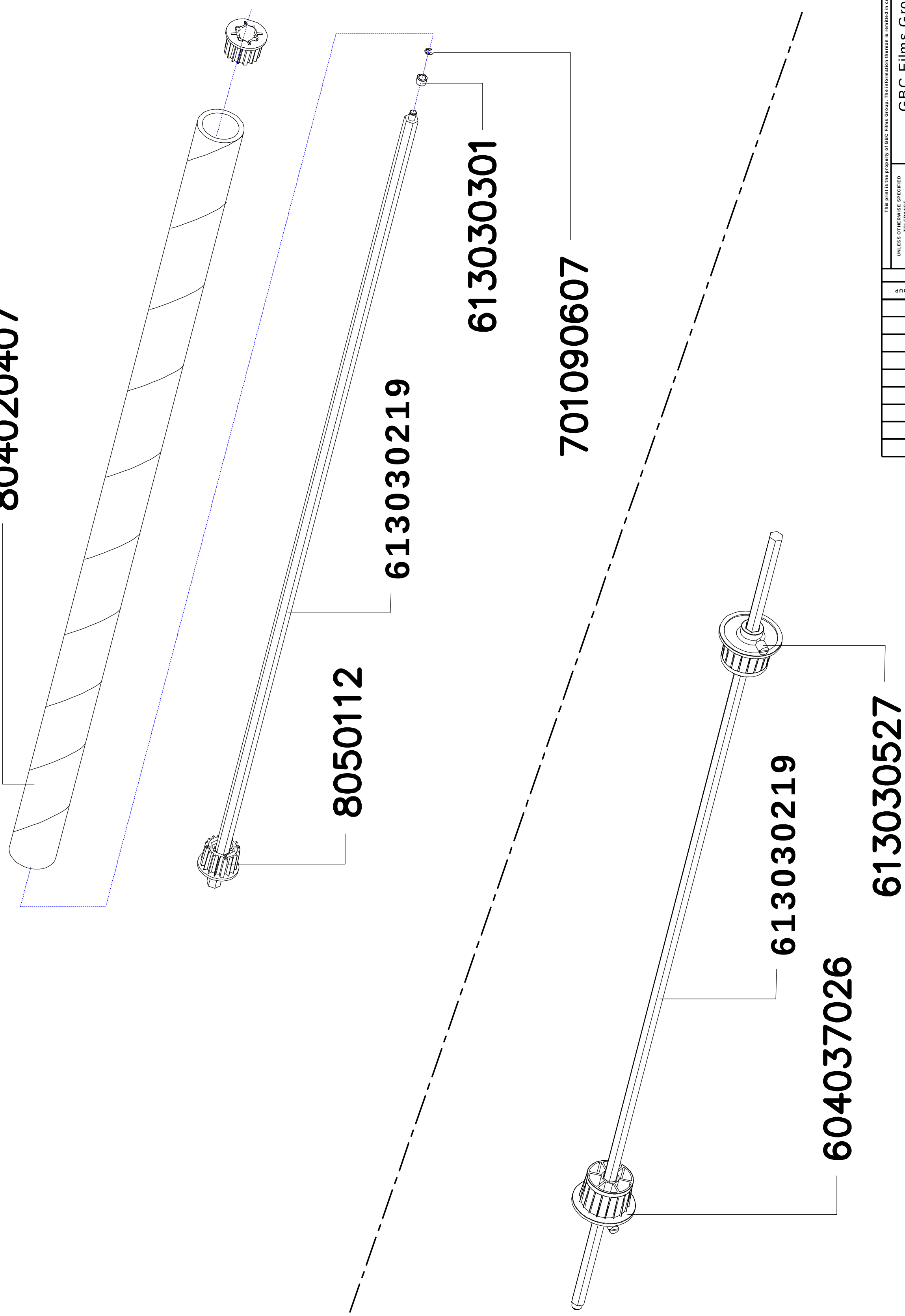

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GBC Films Group
4151 Anderson Road, DeForest, WI 53532

TITLE :
Titan 165: Unwind and rewind assembly

DATE :	DRAWN BY :	DWG SCALE :	DWG :
07/19/00	N/A	N/A	T165 - 007

UNLESS OTHERWISE SPECIFIED TOLERANCE

DM. AS SHOWN	TOL.
X/X	± 1/64
X	± .050
XX	± .010
XXX	± .020
XXXX	± .005

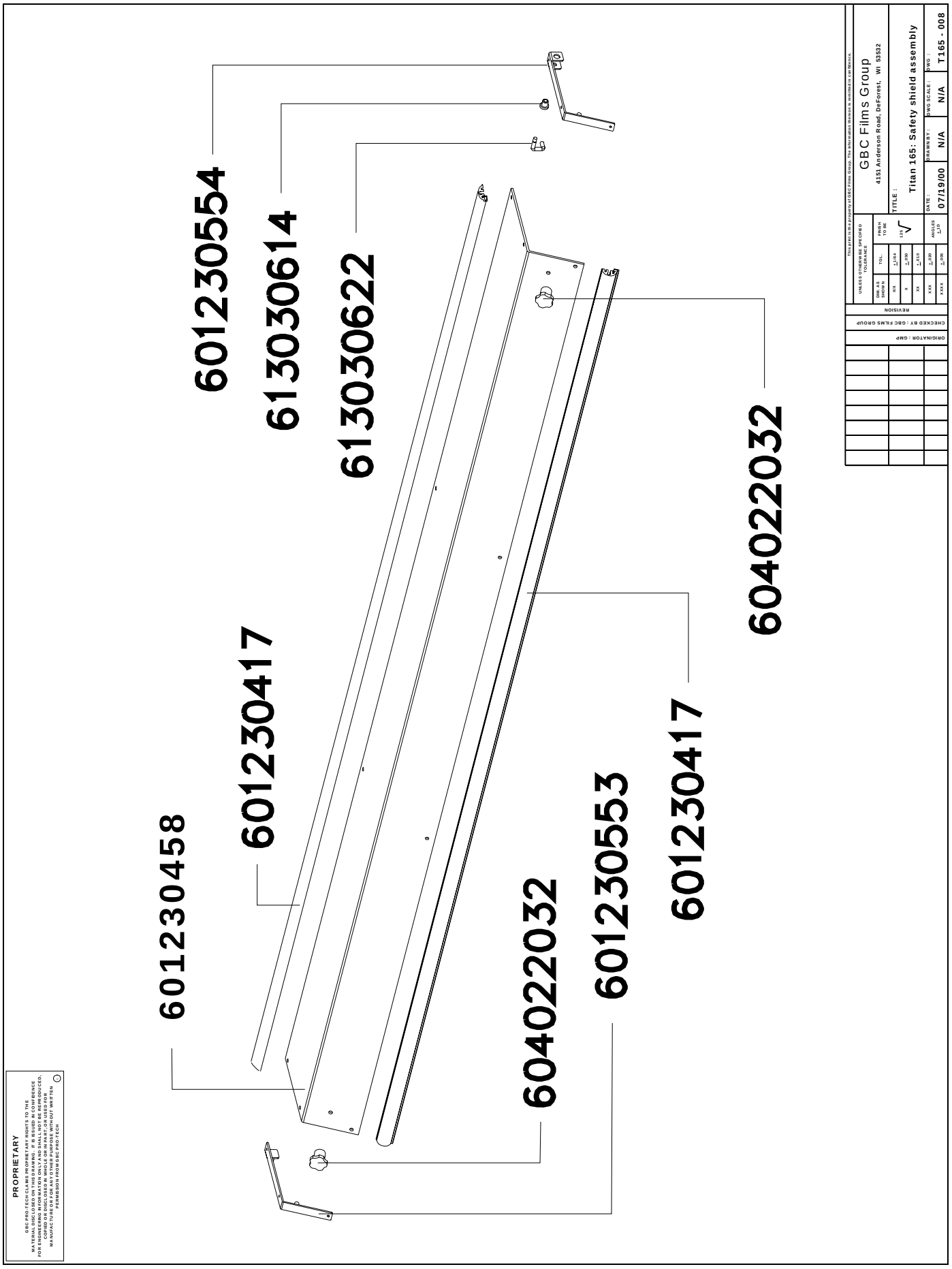
FINISH TO BE 125 √

ANGLES ± 1D

REVISION

CHECKED BY : GBC FILMS GROUP

ORIGINATOR : GMP


601230554
613030614
613030622
604022032
601230458
601230417
601230553
604022032
601230417
PROPRIETARY
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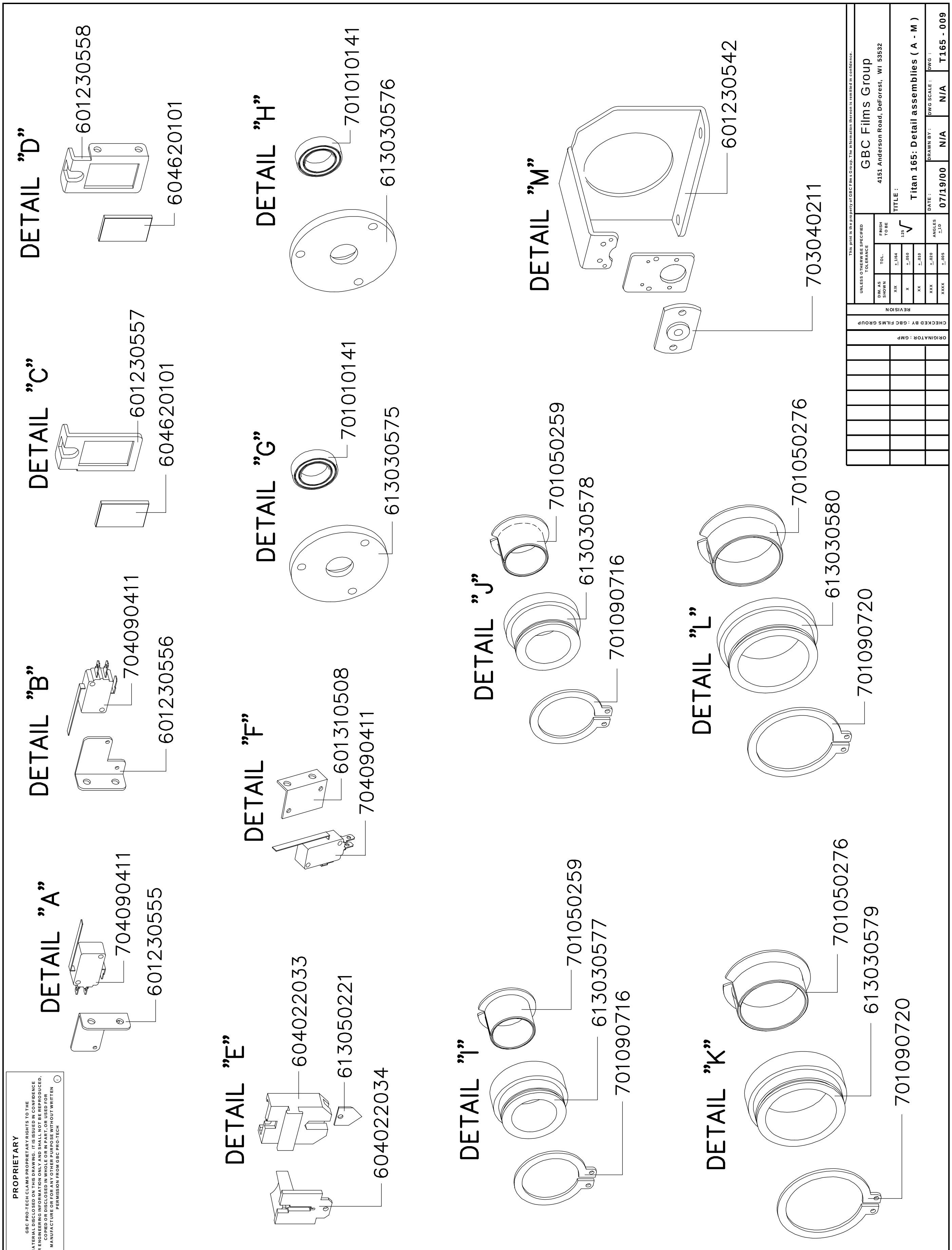
ORIGINATOR : GMP
CHECKED BY : GBC FILMS GROUP
REVISION
UNLESS OTHERWISE SPECIFIED TOLERANCE
DIM. AS SHOWN
XX ±.064
X ±.030
XX ±.010
XXX ±.005
XXXX ±.005
TOL. FINISH TO BE
ANGLES ±1°
This print is the property of GBC Films Group. The information thereon is confidence.
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 165: Safety shield assembly
DATE : 07/19/00
DRAWN BY : N/A
WO SCALE : N/A
DWG : T165 - 008


DETAIL "A"
704090411
601230555
DETAIL "B"
704090411
601230556
DETAIL "C"
601230557
604620101
DETAIL "D"
601230558
604620101
DETAIL "E"
604022033
613050221
604022034
DETAIL "F"
601310508
704090411
DETAIL "G"
701010141
613030575
DETAIL "H"
701010141
613030576
DETAIL "I"
701050259
613030577
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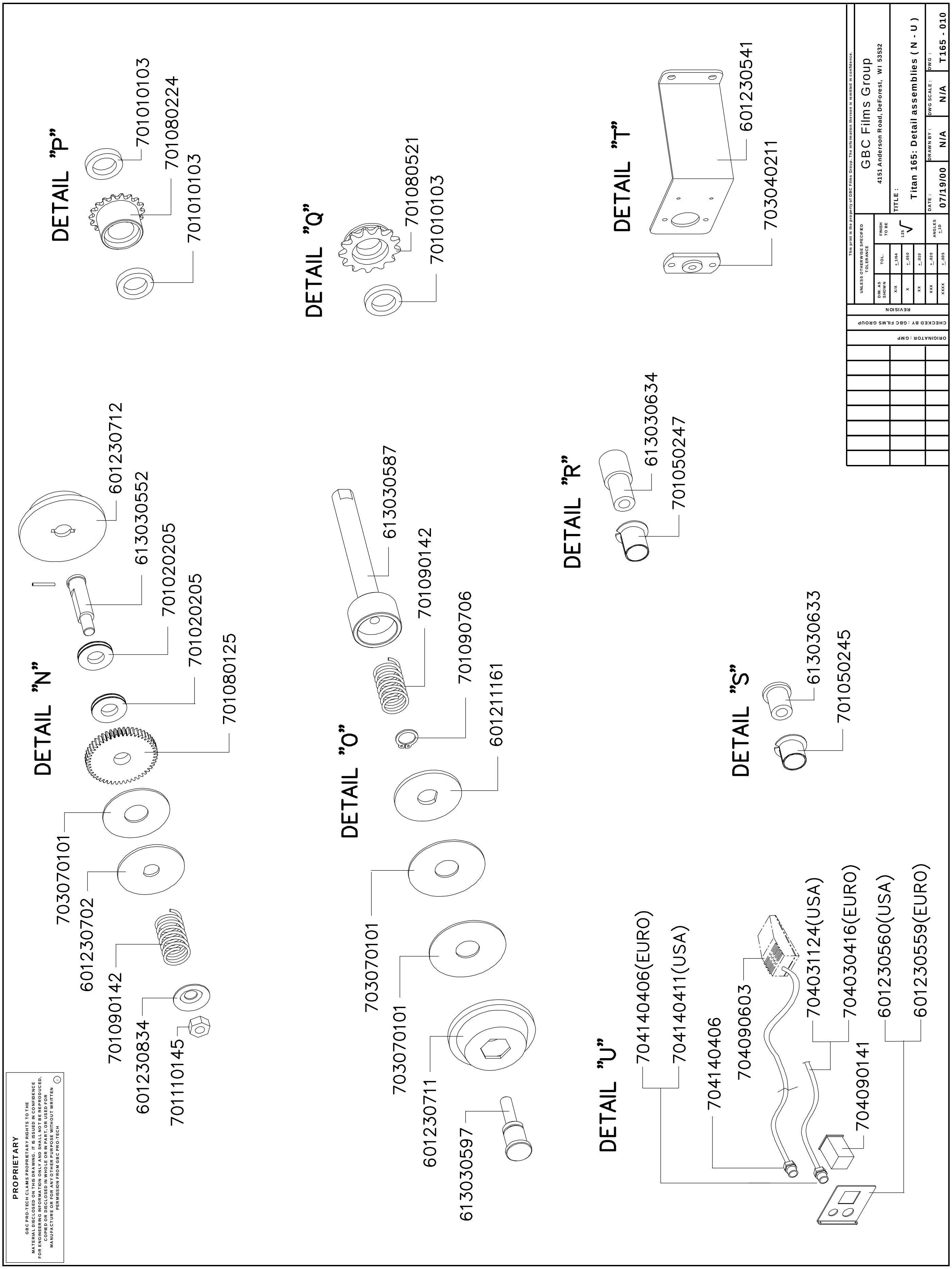
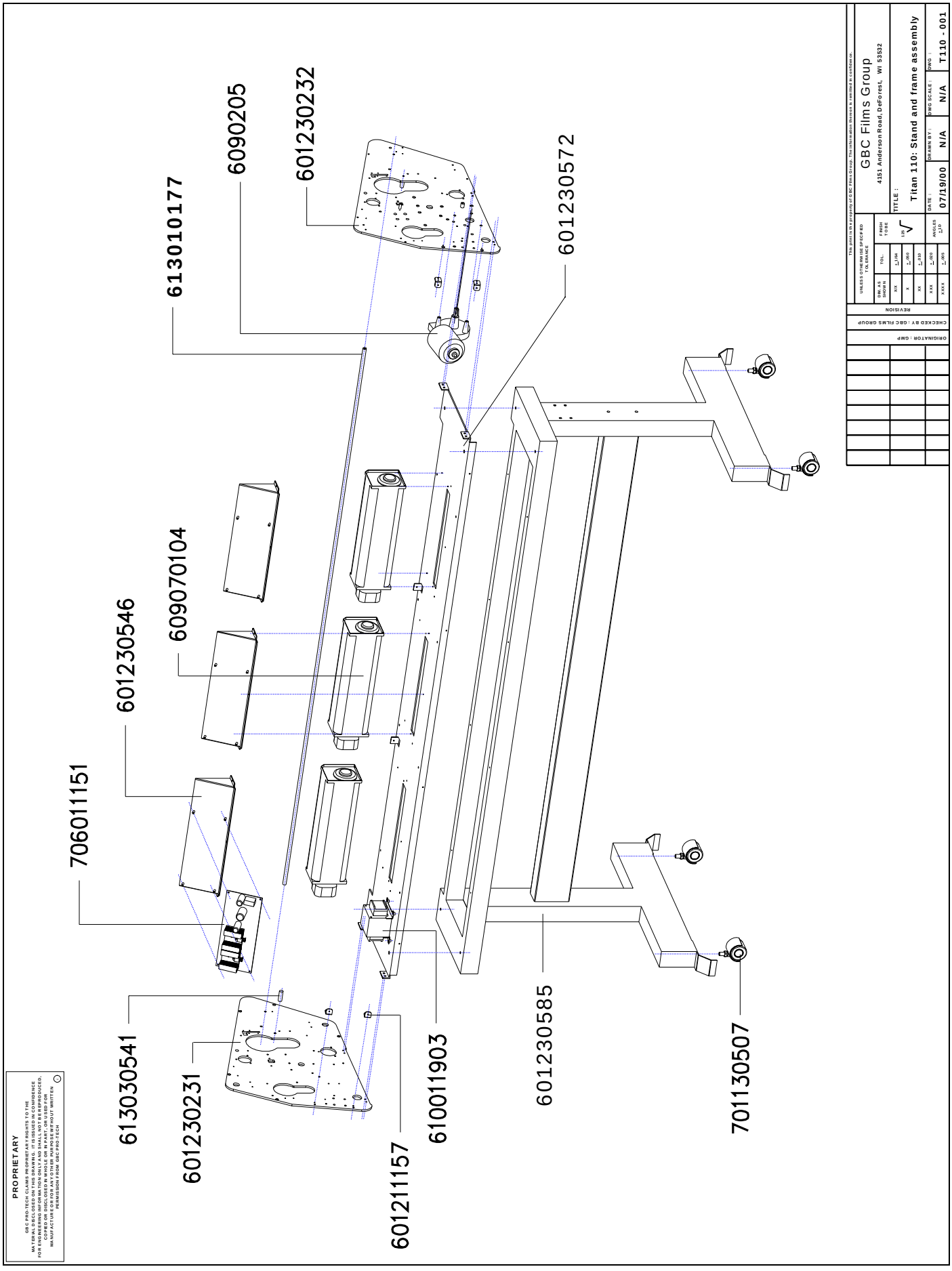
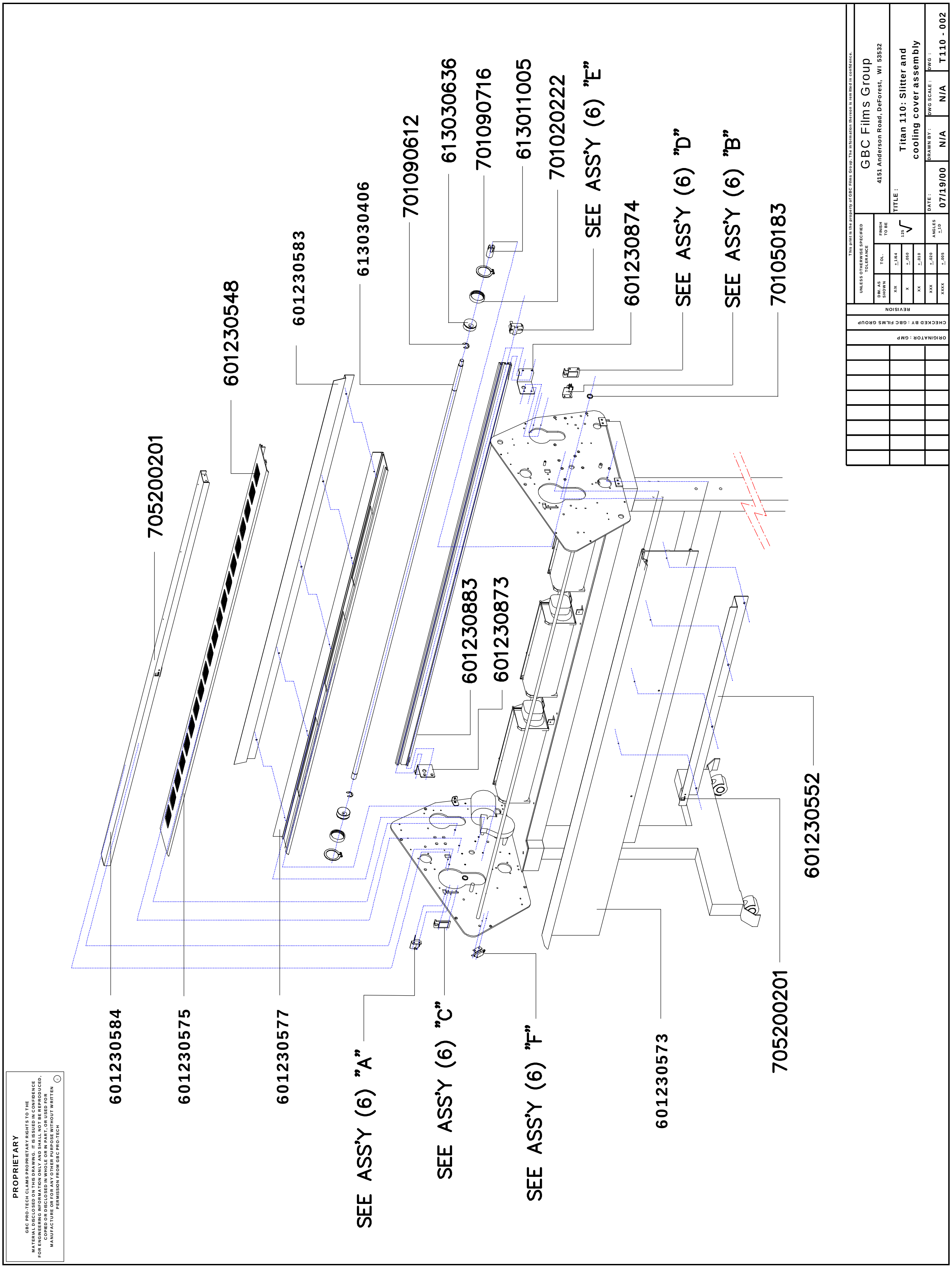
DETAIL "J"
701050259
613030578
701090716
DETAIL "K"
701050276
613030579
701090720
DETAIL "L"
701050276
613030580
701090720
DETAIL "M"
601230542
703040211
PROPRIETARY
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 165: Detail assemblies (A - M)
DATE :
07/19/00
DRAWN BY :
N/A
DWG SCALE :
N/A
DWG :
T165 - 009
REVISION
CHECKED BY : GBC FILMS GROUP
ORIGINATOR : GMP



8.2 Titan 110 Parts illustrations




705200201
601230548
601230583
613030406
701090612
613030636
701090716
613011005
701020222
SEE ASS'Y (6) "E"
601230874
SEE ASS'Y (6) "D"
SEE ASS'Y (6) "B"
701050183
601230883
601230873
601230552
601230584
601230575
601230577
SEE ASS'Y (6) "A"
SEE ASS'Y (6) "C"
SEE ASS'Y (6) "F"
601230573
705200201
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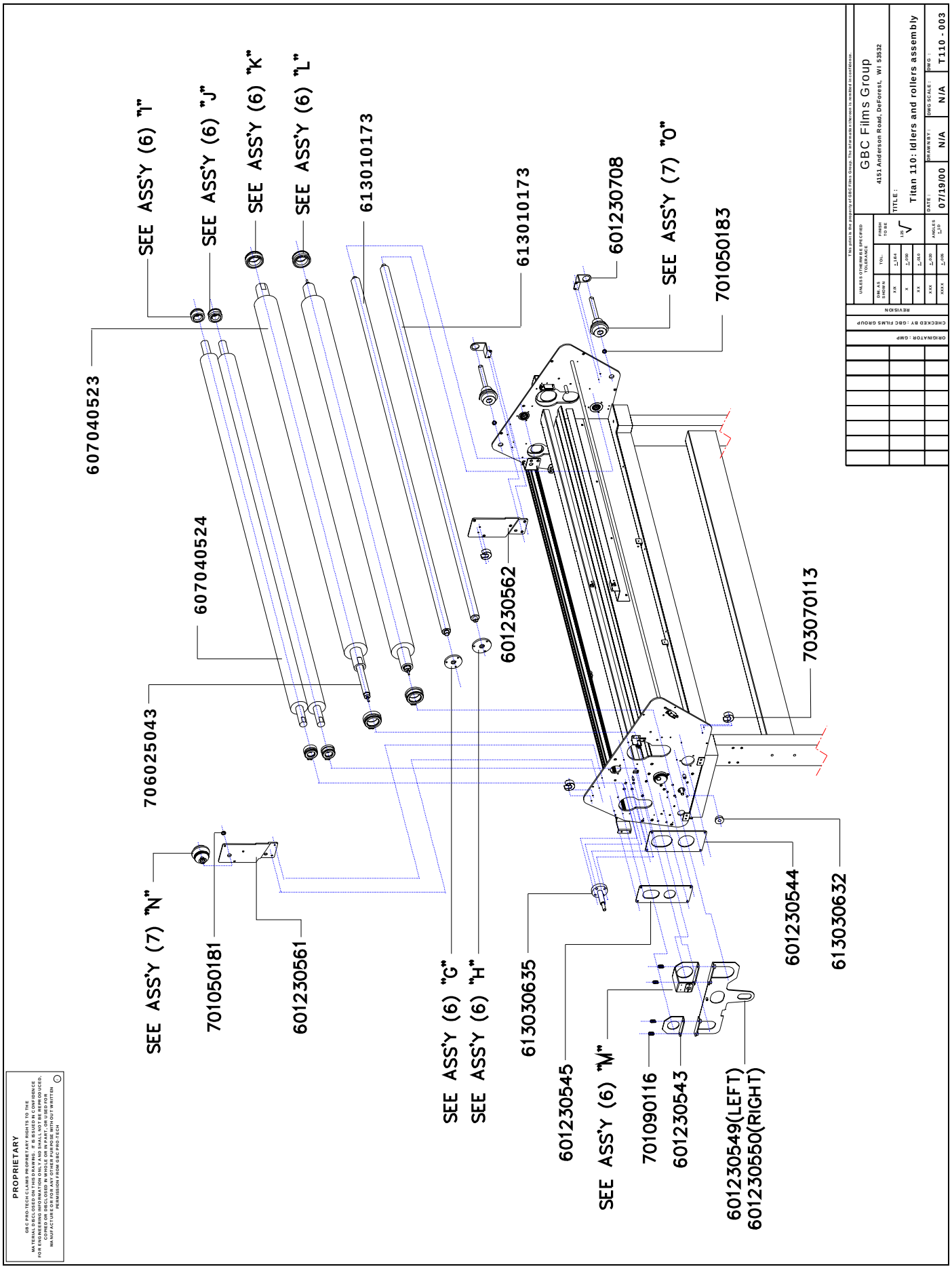
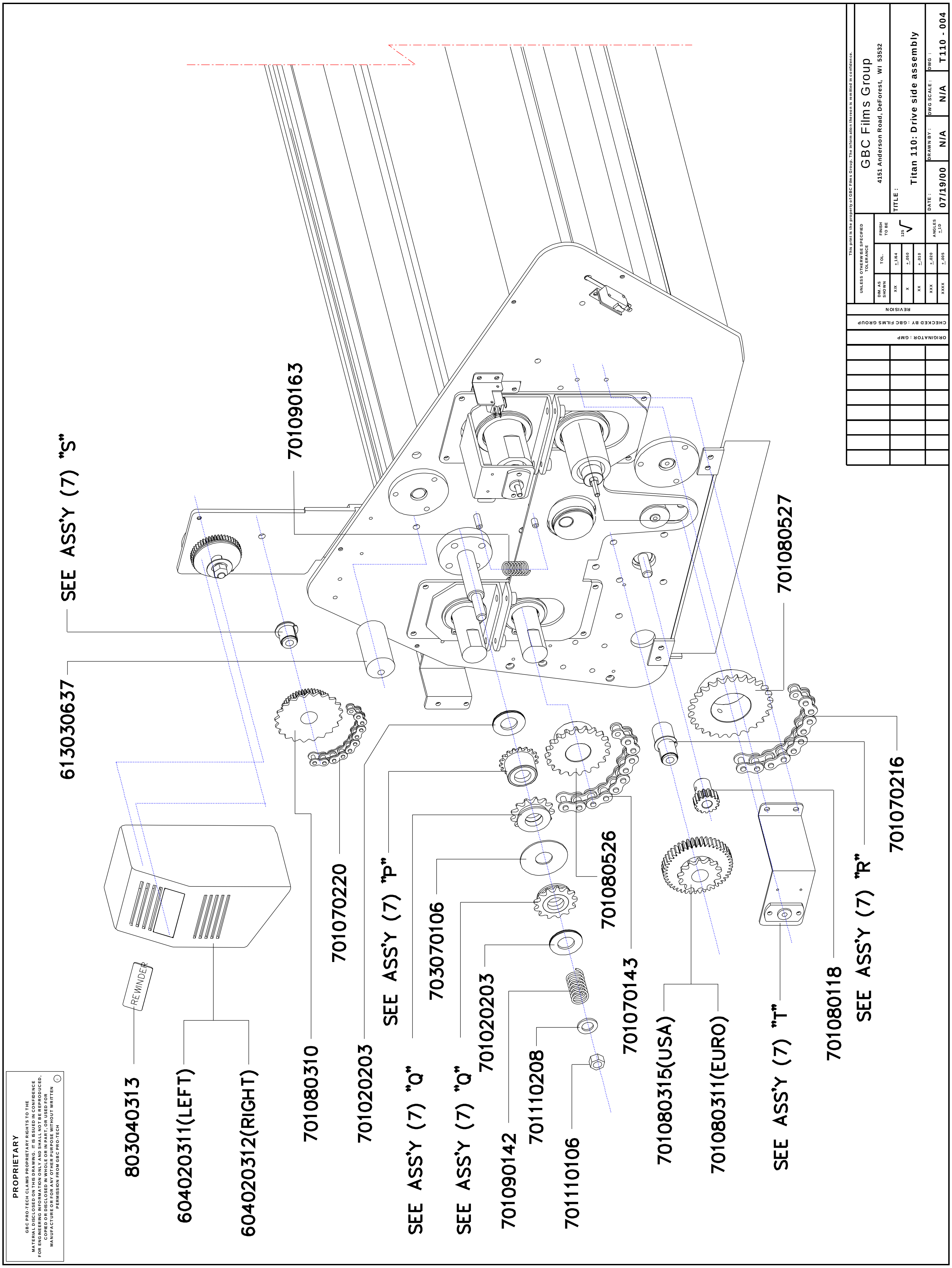
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 110: Slitter and cooling cover assembly
UNLESS OTHERWISE SPECIFIED TOLERANCE
DIM. AS SHOWN
TOL.
X/X ±1/64
X ±.050
XX ±.010
XXX ±.020
XXXX ±.005
FINISH TO BE 125
ANGLES ±1D
DATE : 07/19/00
DRAWN BY : N/A
DWG SCALE : N/A
DWG : T110 - 002
REVISION
CHECKED BY : GBC FILMS GROUP
ORIGINATOR : GMP

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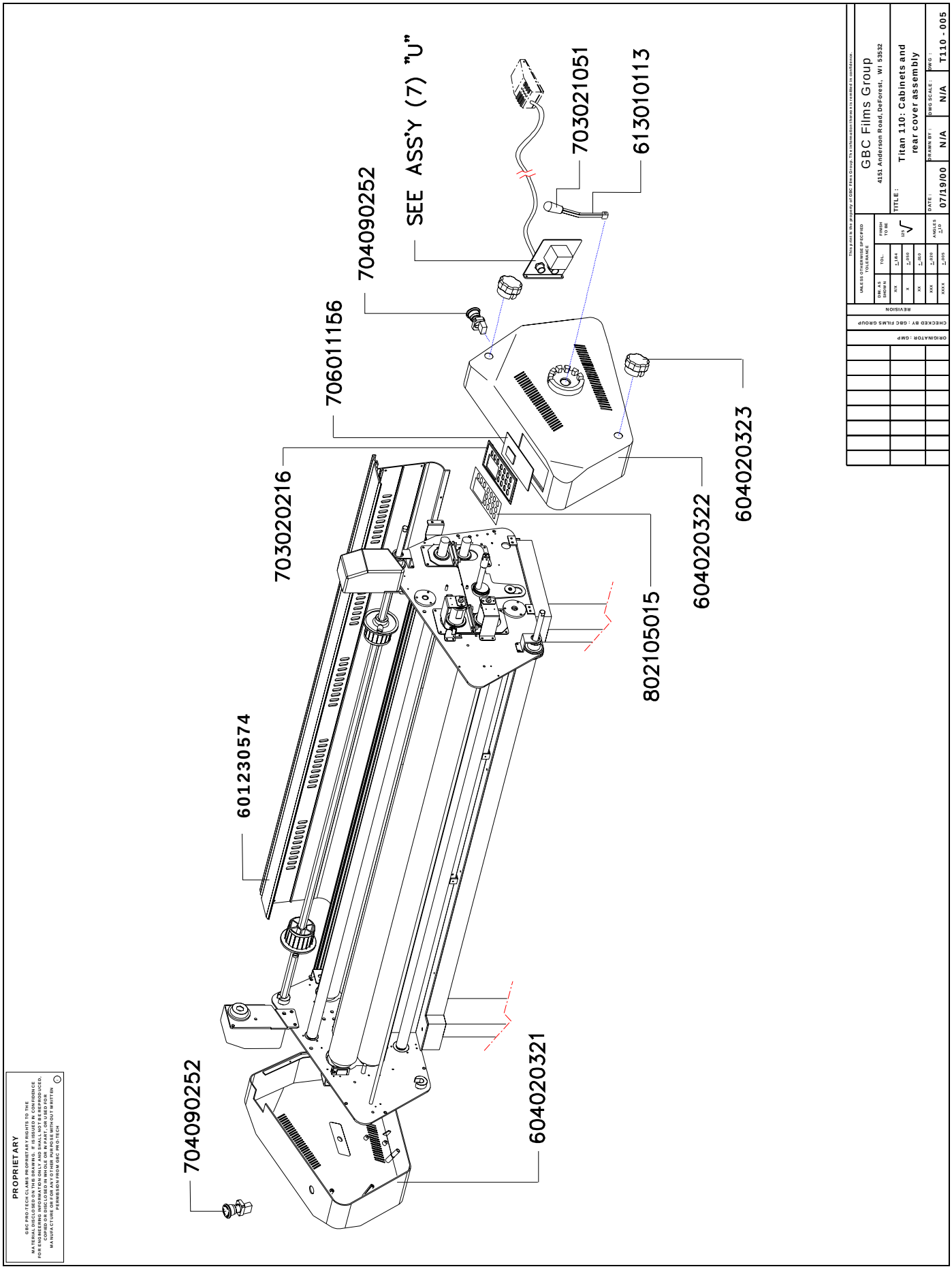
604020311(LEFT)
803040313
REWINDER
PROPRIETARY
GBC Films Group
4151 Anderson Road, DeForest, WI 53532
TITLE :
Titan 110: Drive side assembly
DATE :
07/19/00
DRAWN BY :
N/A
DWG SCALE :
N/A
DWG :
T110 - 004
REVISION
CHECKED BY : GBC FILMS GROUP
ORIGINATOR : GMP



9.0 Addendum

This section is reserved for future changes related to this service manual.

9.1

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10.0 Glossary of terminology

The glossary will assit you in understanding some of the terms used in this service manual.

10.1 Glossary

Control panel: refers to the panel on the right side cabinet from the front which aloows an operator to control the operations of the machine.

Control side: refers to the right hand side of the machine from the front operating position.

Drive side: refers to the left side of the machine from the front operating position.

I/O Board: refers tothe main input / output printed circuit board.

Main rollers: refers to the two rolls closest to the front of the machine.

Nip: refers to the space between two rollers.

Nip impression: refers to the footprint left in laminate when a dwell has occurred.

Web: refers to the material going passing through the machine.

Pull rollers: refers to the two rolls closest to the rear of the machine.

Qualified: Refers to any engineer that has experience with electrical and mechanical design of lamination equipment. The engineers should be fully aware of all aspects of safety with regards to lamination equipment.

Any commissioning or service engineer must be of competent nature, trained and qualified to GBC Pro-Tech standards to fulfill that job. This person will have completed and passed the full service training course from GBC Pro-Tech.

Any GBC Technician, GBC Specialist, and / or GBC Pro-Tech Technician that has been through the GBC Pro-Tech service training course.

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